

Service Manual

Nakamichi Receiver 1



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1. GENERAL

1.1. Production No.
Production No.: D114

1.2. Destinations
USA, CAN, EP, JPN

Abbreviation	
USA — U.S.A.	EP — Europe
CAN — Canada	JPN — Japan

1.3. Parts Supply

(1) Unstocked Parts

Parts marked with "★" at the head of part No. are not stocked. So, it takes time to supply the parts after we receive your order.

(2) Unsupplied Parts

Parts without part Nos. (indicated as "—" in the parts list) are not supplied.

1.4. CAUTIONS/WARNINGS

(1) Product Safety Notice

Parts marked with the symbol  in the schematic diagram have critical characteristics.

Use **ONLY** replacement parts recommended by the manufacturer.

It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedures.

(2) Leakage Current Check/Resistance Check

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamp, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective.

WARNING — DO NOT return the unit to the customer until the problem is located and corrected.

(3) Lithium Battery Caution

Use **ONLY** replacement parts recommended by the manufacturer. Replacement must be done only by qualified service personnel because of risk for explosion.

WARNING

Litiumbatteri. Explosionsfare ved fejlskiftning. Brug kun endast ske av sakkunnig personal enligt servicedokumentationens anvisningar.

ADVARSEL!

Lithiumbatterier. Eksplosionsfare. Udskiftning må kun foretages af en sagkyndig og som beskrevet i servicemanualen.

batterierne kun må udskiftes med batterier af samme fabrikat og type.

(4) Resetting the MPU After Repair

When the Receiver 1 does not work properly with the button operation after repair or after replacing the battery (the display shows abnormal indication), reset the Micro-processing Unit (MPU) U001 (μ PD75208CW-A77) on the Display & Control P.C.B. Ass'y as follows:

1. With the power turned ON, ground the Reset Point on the Display & Control P.C.B. Ass'y.
(See Fig. 6.10 Reset Point: Positive side of C002.)
2. Since the memory contents are cleared, reset them again.

1.5. Package Ass'y

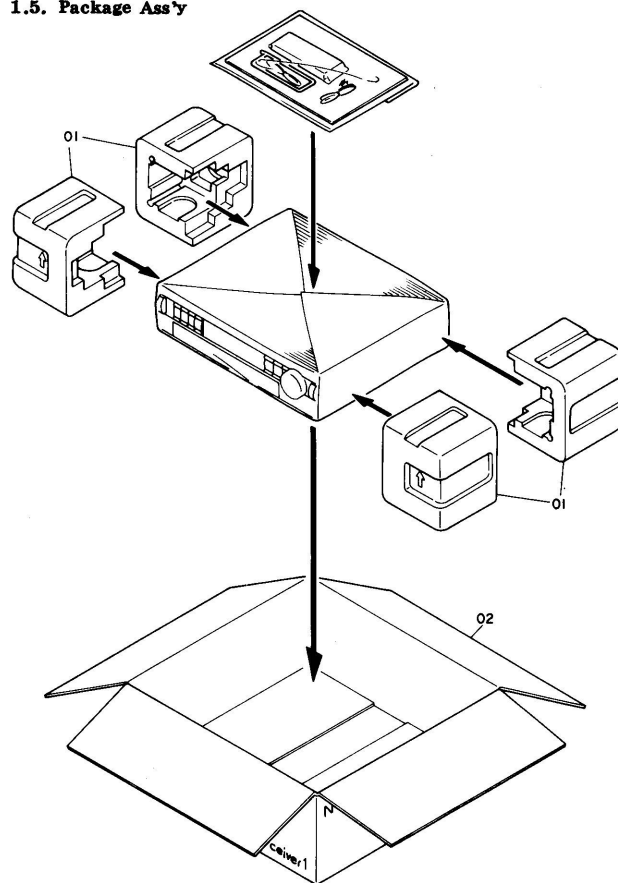


Fig. 1.1

Schematic Ref. No.	Part No.	Description	Q'ty
	—	Package Ass'y	
01	0C85456A	Packing (USA, CAN)	2
02	0C85557A	Carton (USA, CAN)	1

1.6. Accessory Ass'y

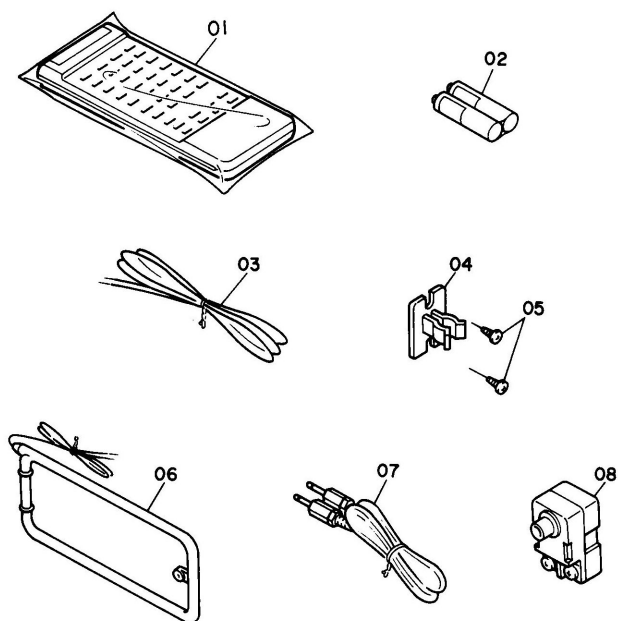


Fig. 1.2

Schematic Ref. No.	Part No.	Description	Q'ty
	CA81732A	Accessory Ass'y (USA, CAN)	1
	DA04447A	Accessory Ass'y (JPN)	1
01	CA81736A	Remote Control Unit	1
02	0B90341A	Battery AA Type x 2	1
03	0B90320A	Feeder Antenna	1
04	0B90319A	Loop Antenna Holder	1
05	0E03659A	3x12 @ Tapping (Black Chromate)	2
06	0C85374A	AM Loop Antenna	1
07	0C85415A	Remote Control Cable	1
08	0C85555A	Antenna Adapter S-U5025 (USA, CAN)	1
	0B90208A	Antenna Adapter FA-322 (EP)	1
	0B90194A	Antenna Adapter F (JPN)	1
	0C85308A	Owner's Manual (English/German/French)	1
	0D06154A	Owner's Manual (Japanese)	1

2. REMOVAL PROCEDURES

2.1. Top Cover Ass'y

Refer to Fig. 2.1.

- (1) Loosen screws F01 (5 pcs.) and remove F02 (Top Cover Ass'y).

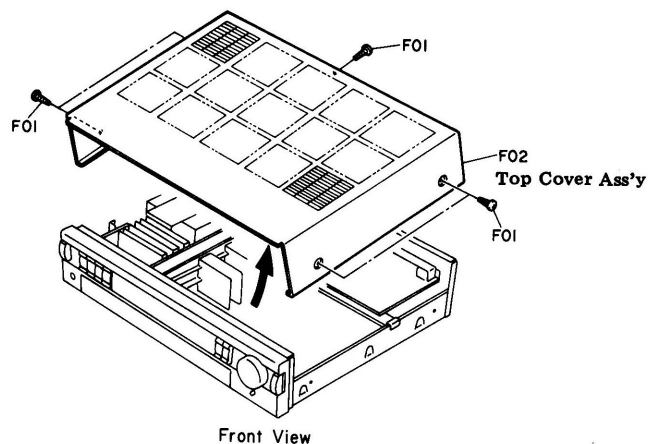


Fig. 2.1

2.2. Bottom Cover Ass'y

Refer to Fig. 2.2.

- (1) Loosen screws F01 (9 pcs.) and F02 (1 pce.) and remove F03 (Bottom Cover Ass'y).

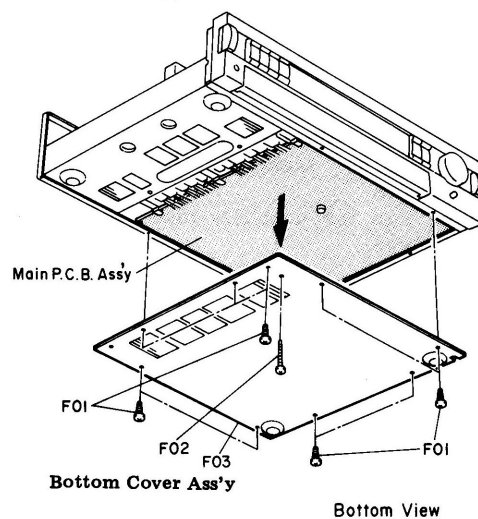


Fig. 2.2

2.3. Sealing Panel

Refer to Fig. 2.3.

- (1) Loosen screws F01 (2 pcs.) and remove F02 (Sealing Panel).

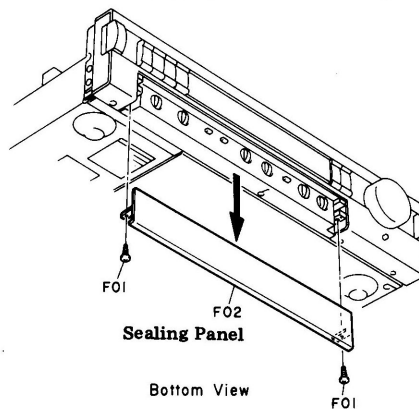


Fig. 2.3

2.4. Front Panel Ass'y

Refer to Fig. 2.4.

- (1) Remove the Top Cover Ass'y referring to item 2.1.
- (2) Loosen screws F01 (3 pcs.) and F02 (3 pcs.) and remove F03 (Front Panel Ass'y).

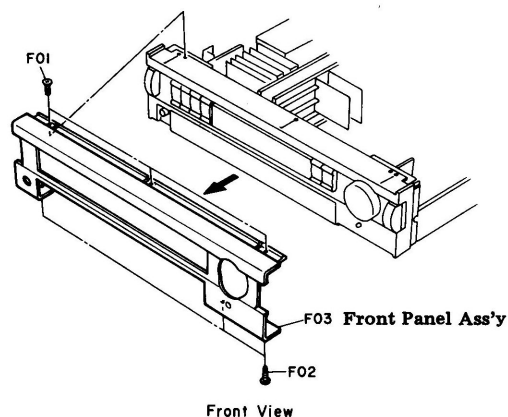


Fig. 2.4

2.5. Front Chassis Ass'y

Refer to Fig. 2.5.

- (1) Remove the Front Panel Ass'y referring to item 2.4.
- (2) Disconnect the connector CN-5 from the Main P.C.B. Ass'y and pull out F01 (Volume Knob Ass'y).
- (3) Loosen screws F02 (4 pcs.), F03 (3 pcs.) and F04 (1 pce.).
- (4) Disconnect all connectors (11 pcs.) and remove F05 (Front Chassis Ass'y).

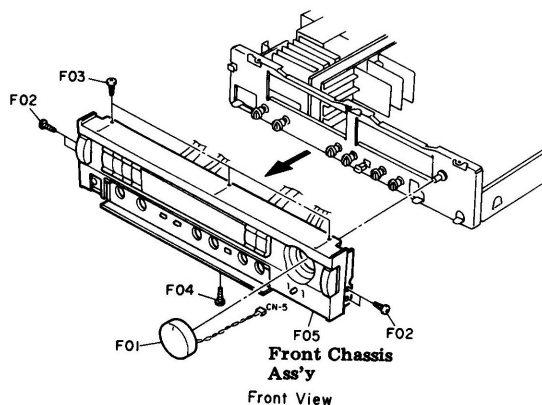


Fig. 2.5

2.6. Display & Control P.C.B. Ass'y and Audio Mute P.C.B. Ass'y

Refer to Fig. 2.6.

- (1) Remove the Front Chassis Ass'y referring to item 2.5.
- (2) Loosen screws F01 (8 pcs.) and F02 (1 pce.), and remove F03 (Display & Control P.C.B. Ass'y) and F04 (Audio Mute P.C.B. Ass'y).

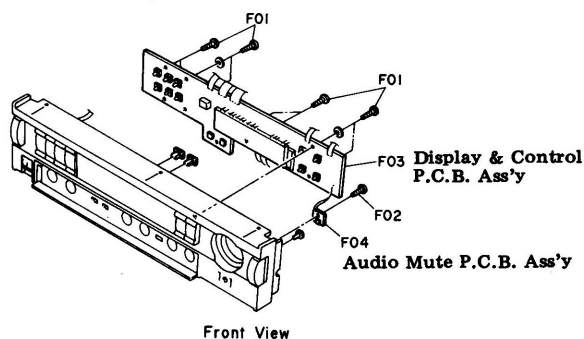


Fig. 2.6

2.7. System Remote P.C.B. Ass'y

Refer to Fig. 2.7.

- (1) Remove the Top Cover Ass'y referring to item 2.1.
- (2) Loosen screws F01 (2 pcs.), F02 (5 pcs.) and F03 (3 pcs.), and remove F04 (System Remote P.C.B. Ass'y) in the direction of the arrow.

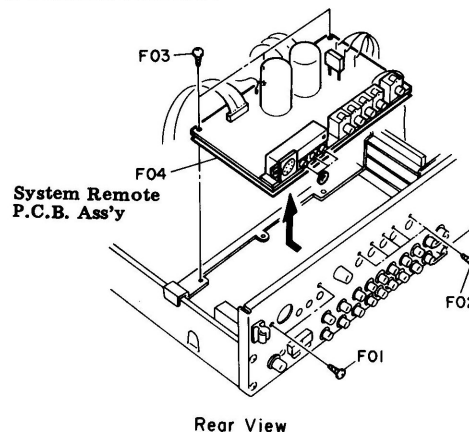


Fig. 2.7

2.8. Power Supply P.C.B. Ass'y

Refer to Fig. 2.8.

- (1) Remove the Top Cover Ass'y referring to item 2.1.
- (2) Loosen a screw F01 remove F02 (Transformer Holder).
- (3) Loosen a screw F03 and remove F04 (Power Supply P.C.B. Ass'y) in the direction of the arrow.

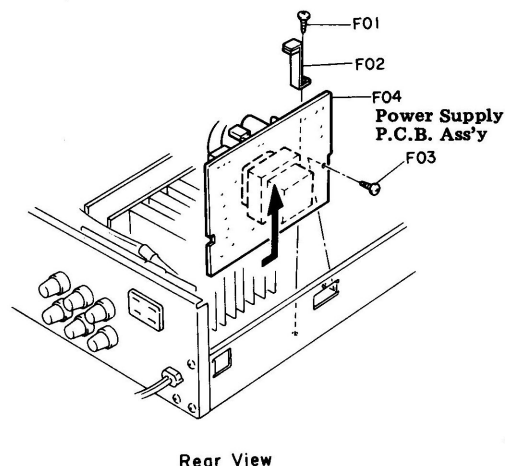


Fig. 2.8

3. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

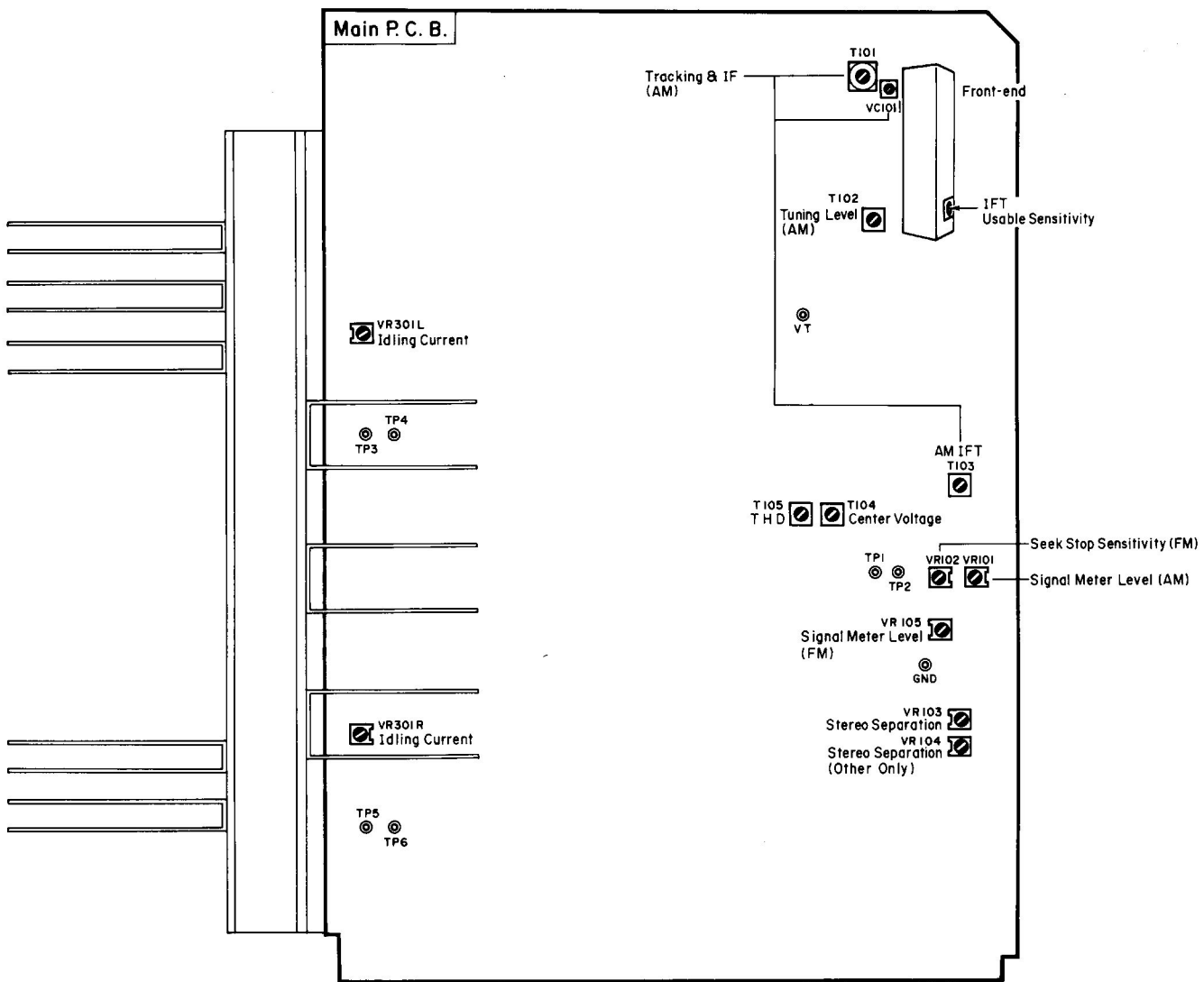


Fig. 3

4. ELECTRICAL ADJUSTMENTS

4.1. Power Amplifier Section

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
1	Idling Current	None	DC Voltmeter between TP3,4 (L) and TP5,6 (R) on Main P.C.B.	Listen Monitor Selector - CD Volume - Min. Speaker Selector - OFF	Main P.C.B. VR301L VR301R	1. Insert shorting plugs into the CD Player Input Jacks. 2. Turn ON the power and allow 3 minutes before adjustment. (Top Cover must be installed in this period of time.) 3. Adjust VR301L (VR301R) to obtain $4\text{ mV} \pm 1\text{ mV}$ on the DC voltmeter.

4.2. Tuner Section

Note: Adjustment should be made in a shielded room in principle.

(1) FM Tuner Section

STEP	ITEM	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
1	Preliminary Step	See Fig. 4.1	Receiver 1 Listen Monitor Selector - Tuner Band Selector - FM Rec.Out Selector - Tuner Signal Generator Freq. - 98.1 MHz - 83 MHz (Japan) RF Level - 65 dBf Modulation - See REMARKS		1. Set the Receiver 1 as indicated in the MODE. 2. Adjustment and confirmation should be made after tuning in to the set carrier frequency of the Signal Generator. Note: Contents of modulation 1. For U.S.A., Canada, Other (Wide) & Japan o Stereo Audio: 1 kHz, 91% Pilot: 19 kHz, 9% o Mono Audio: 1 kHz, 100% 2. For Australia, Europe & Other (Narrow) o Stereo Audio: 1 kHz, 51% Pilot: 19 kHz, 9% o Mono Audio: 1 kHz, 60%
2	Usable Sensitivity Adjustment	Distortion Meter to Tape 1 Record Output Jacks	Receiver 1 Same as above Signal Generator Freq. - 98.1 MHz - 83 MHz (Japan) RF Level - 13.5 dBf Modulation - Mono	Main P.C.B. Front-end IFT	1. Set the Receiver 1 to Manual mode by pressing the Tuning Mode button. 2. Adjust the IFT to obtain minimum distortion (total harmonic distortion (THD): 3% or less). 3. Set the frequency of the Signal Generator to 90.1 MHz/106.1 MHz and check that the THD is 3% or less.
3	Center Voltage and THD Adjustment	DC Voltmeter between TP1 & TP2 on Main P.C.B. and Distortion Meter to Tape 1 Record Output Jacks	Receiver 1 Same as above Signal Generator Freq. - 98.1 MHz - 83 MHz (Japan) RF Level - 65 dBf Modulation - Mono	Main P.C.B. T104 T105	1. Set the Receiver 1 to Manual mode. 2. Adjust T104 so that the reading on the DC voltmeter is 0 V $\pm$ 20 mV. 3. Adjust T105 to obtain minimum distortion (THD: 0.08% or less). Repeat 2 and 3, if necessary.
4	Seek Stop Sensitivity Adjustment	Oscilloscope to Tape 1 Record Output Jacks	Receiver 1 Same as above Signal Generator Freq. - 98.1 MHz - 83 MHz (Japan) RF Level - 30 dBf Modulation - Stereo	Main P.C.B. VR102	1. Set the Receiver 1 to Auto mode. 2. Rotate VR102 fully counterclockwise. Then, return it clockwise gradually until a waveform appears on the oscilloscope. 3. Decrease the RF level of the Signal Generator until the waveform on the oscilloscope disappears. Then increase the RF level gradually until a waveform appears again. At this point, check that the RF level of the Signal Generator is 24 dBf $\pm$ 6 dB.

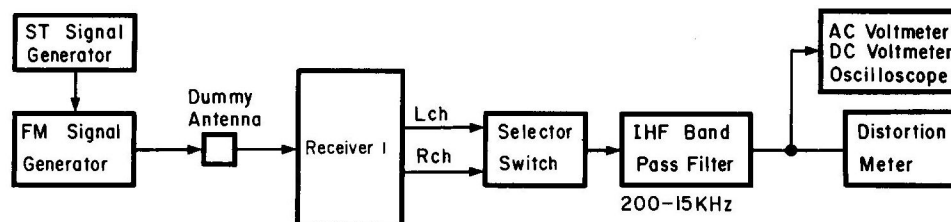


Fig. 4.1 FM Measuring Connecting Diagram

STEP	ITEM	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
5	Signal Meter Level Adjustment	None	Receiver 1 Same as above Signal Generator Freq. - 98.1 MHz - 83 MHz (Japan) RF Level - 48 dBf Modulation - Stereo	Main P.C.B. VR105	1. Set the Receiver 1 to Auto mode. 2. Adjust VR105 so that all segments (1 - 5) of the signal level indicator light up. 3. Decrease the RF level of the Signal Generator to distinguish the segment 5. Next, increase it gradually so that the segment 5 starts illuminating. At this point, check that the RF level of the Signal Generator is 48 dBf ± 6 dB.
6	Stereo Separation Adjustment	AC Voltmeter to Tape 1 Record Output Jacks	Receiver 1 Same as above Signal Generator Freq. - 98.1 MHz - 83 MHz (Japan) RF Level - 65 dBf Modulation - L or R only	Main P.C.B. VR103 VR104 (Other only)	For U.S.A., Canada, Europe, Australia & Japan versions: 1. Set the Receiver 1 to Auto mode. 2. Apply modulation to only L channel. 3. Adjust VR103 to obtain minimum reading on the AC voltmeter at the R channel output jack. 4. Apply modulation to only R channel. 5. Check that the reading on the AC voltmeter at the L channel output jack is within ± 1 dB with respect to the reading in 3. If not, repeat 2 through 4. For Other version: 1. Set the switches on the rear panel as follows: Freq. Step FM/AM - 200 kHz/10 kHz IF Band - Wide 2. Apply the same procedures as above. 3. Set the switches as follows: Freq. step FM/AM - 50 kHz/9 kHz IF Band - Narrow 4. Apply the same procedures as mentioned above. However, adjust VR104 instead of VR103.

(2) AM Tuner Section

Note: Frequencies for Australia, Europe and Other (Narrow) are indicated in parentheses.

STEP	ITEM	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
1	Tuning Level Adjustment	DC Voltmeter between TP (VT) and TP (GND) on Main P.C.B.	Receiver 1 Listen Monitor Selector - Tuner Band Selector - AM Rec.out selector - Tuner Signal Generator Freq. - 520 (522) kHz/ 1710 (1611) kHz Modulation - 400 Hz 30%	Main P.C.B. T102	1. Set the frequency of the Signal Generator to 520 kHz (522 kHz) and make tuning. 2. Adjust T102 to obtain 2.4 V $\pm$ 0.1V on the DC voltmeter. 3. Change the frequency to 1710 kHz (1611 kHz) and make tuning. Check whether the DC voltmeter reads 15 V to 16 V.
2	Tracking and IF Adjustment	AC Voltmeter to Tape 1 Record Output Jacks	Receiver 1 Same as above Signal Generator Freq. - 600 (603) kHz/ 1400 (1404) kHz RF Level - 82 dB μ Modulation - 400 Hz 30%	Main P.C.B. T101 T103 VC101	1. Set the measurement instruments as shown in Fig. 4.2. Set the distance between the AM Loop Antenna of the Receiver 1 and a test loop to 60 cm. To obtain 56 dB μ /m at the AM Loop Antenna, set the RF level output of the AM Signal Generator to 82 dB μ as loss is 26 dB in this setting. 2. Set the frequency of the Signal Generator to 600 kHz (603 kHz) and make tuning. 3. Adjust T101 to obtain maximum reading on the AC voltmeter. 4. Adjust T103 to obtain maximum reading on the AC voltmeter. 5. Set the frequency to 1400 kHz (1404 kHz) and make tuning. 6. Adjust VC101 to obtain maximum reading on the AC voltmeter. 7. Repeat 2 through 6 once.
3	Signal Meter Level Adjustment	None	Receiver 1 Same as above Signal Generator Freq. - 1000 (999) kHz RF Level - 100 dB μ Modulation - 400 Hz 30%	Main P.C.B. VR101	1. With the same setting as in Step 2, set the RF level output of the AM Signal Generator to 100 dB μ in order to obtain 80 dB μ /m at the AM Loop Antenna. 2. Adjust VR101 so that the segment 5 of the signal level indicator starts illuminating. Note: Before adjustment, select AM mode and wait for more than three minutes.

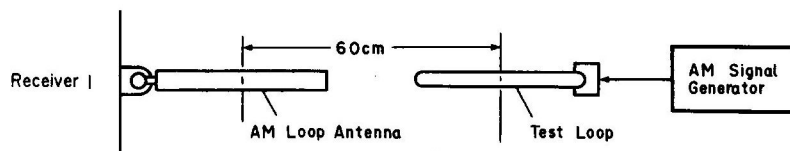


Fig. 4.2 AM Measuring Diagram

5. MECHANISM ASS'Y AND PARTS LIST

5.1. Synthesis

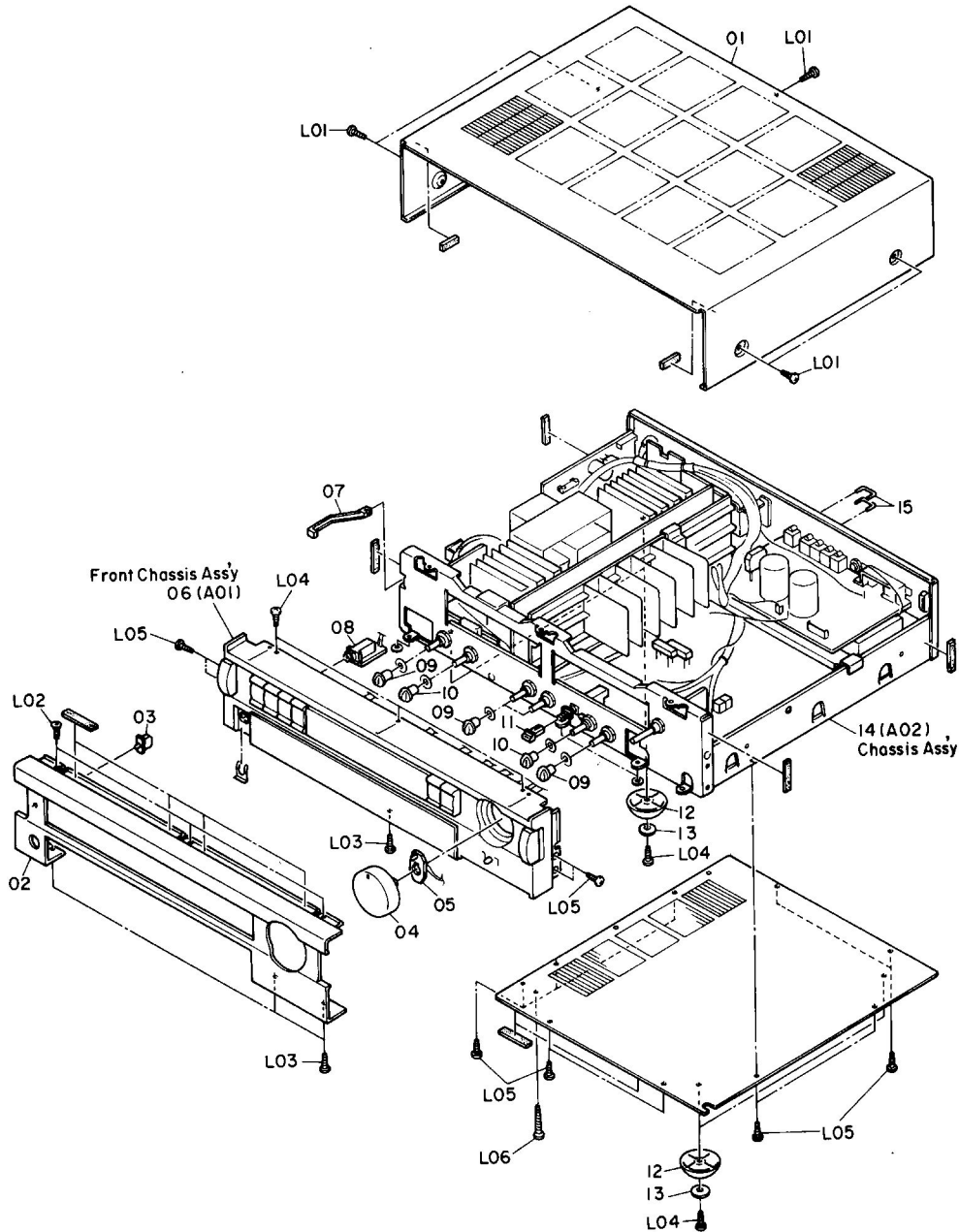


Fig. 5.1

★: Unstocked parts:

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
5.1. Synthesis				10	OC85461A	Tone Knob LG	2
				11	OC85465A	Push Switch Knob DG	1
				12	OC85356A	Leg	4
				13	OC85358A	Leg Felt Sheet	4
				14	—	Chassis Ass'y	1
				15	OJ05710A	Shorting Pin	2
01	OC85459A	Top Cover	1	L01	OE03433A	BT3x6 @ Binding Projected (Black Chromate)	
02	OC85558A	Front Panel	1	L02	OE03495A	BT3x10 @ Countersunk (Black Chromate)	
03	OC85342A	LED Lens	1	L03	OE00948A	BT3x10 @ Binding (Black Chromate)	
04	CA81683A	Volume Knob Ass'y	1	L04	OE00868A	BT3x8 @ Binding	
05	★ CA81715A	Volume LED P.C.B. Ass'y (USA, CAN, EP)	1	L05	OE00857A	BT3x6 @ Binding	
	★ BA08179A	Volume LED P.C.B. Ass'y (JPN)	1	L06	OC85577A	BT3x16 @ Binding (Tapping)	
06	—	Front Chassis Ass'y	1				
07	OC85357A	Power Switch Joint	1				
08	★ CA81719A	Headphone P.C.B. Ass'y (USA, CAN, EP)	1				
	★ BA08183A	Headphone P.C.B. Ass'y (JPN)	1				
09	OC85460A	Tone Knob DG	4				

5.2. Front Chassis Ass'y (A01)

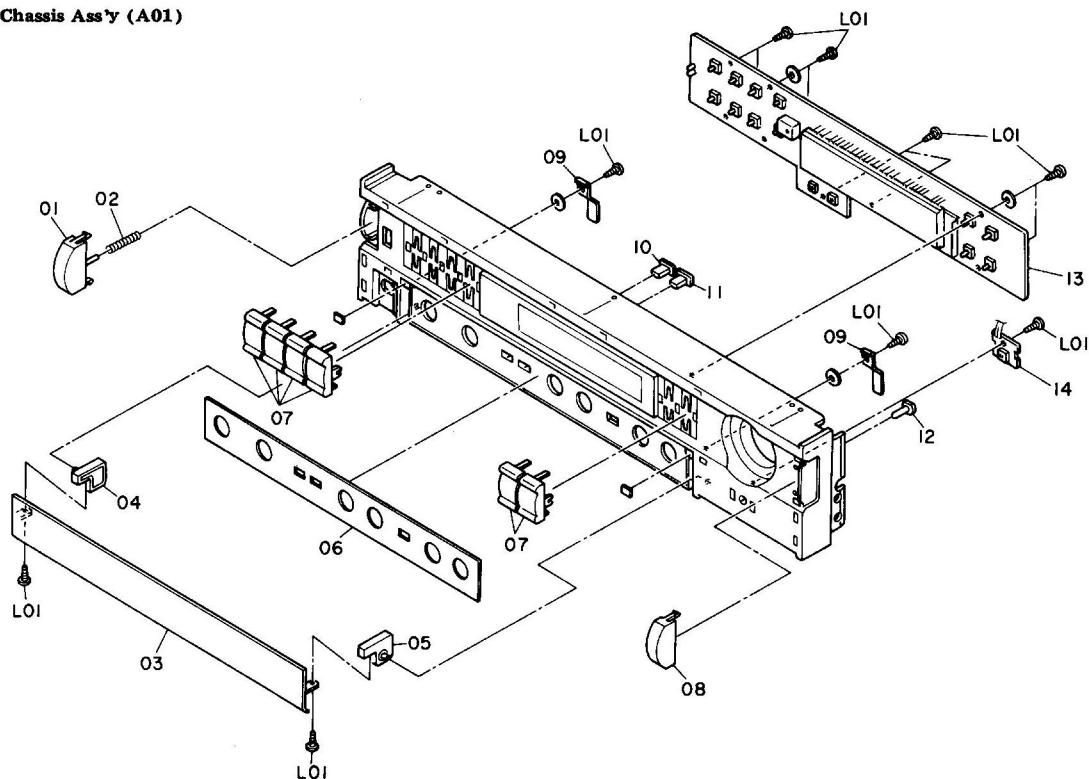


Fig. 5.2

★: Unstocked parts:

Schematic Ref. No.	Part No.	Description	Qty
5.2. Front Chassis Ass'y (A01)			
A01	—	Front Chassis Ass'y	1
01	0C85345A	Power Switch Knob	1
02	0C85347A	Power Switch Spring	1
03	0C85489A	Sealing Panel	1
04	0C85491A	Hinge L	1
05	0C85492A	Hinge R	1
06	0C85479A	Indication Panel	1
07	0C85390A	Control Knob	6
08	0C85389A	Dummy Cap	1
09	0C85490A	Door Spring	2
10	0C85467A	Tact Switch Knob DG	1
11	0C85469A	Tact Switch Knob LG	1
12	0C85468A	Mute Knob	1
13	★ CA81725A	Display & Control P.C.B. Ass'y (USA, CAN)	1
	★ CA81766A	Display & Control P.C.B. Ass'y (EP)	1
	★ BA08223A	Display & Control P.C.B. Ass'y (JPN)	1
14	★ CA81713A	Audio Mute P.C.B. Ass'y (USA, CAN, EP)	1
	★ BA08177A	Audio Mute P.C.B. Ass'y (JPN)	1
L01	0C85416A	PT3x8 ⊕ Binding	

5.3. Chassis Ass'y (A02)

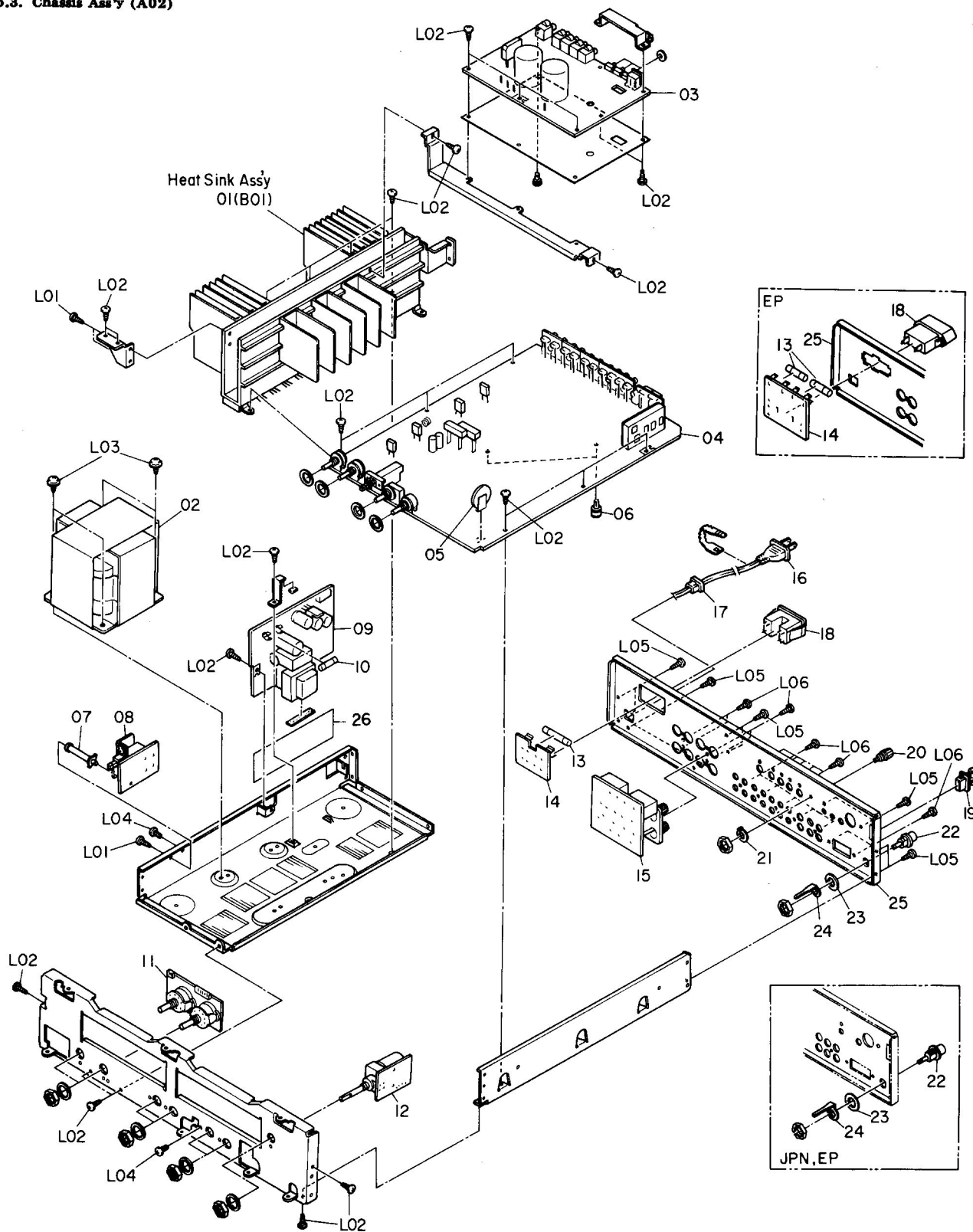


Fig. 5.3

★: Unstocked parts:

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
5.3. Chassis Ass'y (A02)				5.4. Heat Sink Ass'y (B01)			
A02	—	Chassis Ass'y	1	B01	—	Heat Sink Ass'y	1
01	—	Heat Sink Ass'y	1	01	0B10199A	TR 2SC3421 [Q306L/R]	2
02	0C85560A	Power Transformer (USA, CAN)	1	02	0B19607A	Thermister 50KD-5 [TH301]	1
	0C85773A	Power Transformer (EP)	1	03	0J05615A	TH Holder	1
	0C85550A	Power Transformer (JPN)	1	04	0J05672A	Insulator	4
03	★ CA81731A	System Remote P.C.B. Ass'y (USA, CAN, EP)	1	05	0B10292A	TR 2SC2167 [Q307L/R]	2
	★ BA08229A	System Remote P.C.B. Ass'y (JPN)	1	06	0B10293A	TR 2SA957 [Q308L/R]	2
04	★ CA81724A	Main P.C.B. Ass'y (USA, CAN)	1	07	0B08594A	Transistor Bushing	4
	★ CA81765A	Main P.C.B. Ass'y (EP)	1	08	0J05671A	Insulator TO-3P	2
	★ BA08222A	Main P.C.B. Ass'y (JPN)	1	09	0B10250A	TR 2SC3856 [Q309L/R]	4
05	0B90200B	Lithium Battery CR243-FT4-2	1	10	0B10251A	TR 2SA1492 [Q310L/R]	2
06	0C85351A	P.C.B. Support 6mm	2	L01	0E00868A	BT3x8 ⊕ Binding	
07	0C85361A	P.C.B. Support 25mm	1	L02	0E00986A	M3x10 ⊕ Binding	
08	★ CA81730A	Power Switch P.C.B. Ass'y (USA, CAN)	1	L03	0E00994A	M3x12 ⊕ Tapping (Black Chromate)	
	★ CA81746A	Power Switch P.C.B. Ass'y (EP)	1				
	★ BA08228A	Power Switch P.C.B. Ass'y (JPN)	1				
09	★ CA81727A	Power Supply P.C.B. Ass'y (USA, CAN)	1				
	★ CA81767A	Power Supply P.C.B. Ass'y (EP)	1				
	★ BA08225A	Power Supply P.C.B. Ass'y (JPN)	1				
10	0B90345A	Fuse T500mA 125V [F401] (USA, CAN)	1				
	0B90288A	Fuse T500mA 250V [F401] (EP)	1				
	0B90493A	Fuse 500mA 250V [F401] (JPN)	1				
11	★ CA81726A	Selector P.C.B. Ass'y (USA, CAN, EP)	1				
	★ BA08224A	Selector P.C.B. Ass'y (JPN)	1				
12	★ CA81722A	Motor Volume P.C.B. Ass'y (USA, CAN, EP)	1				
	★ BA08186A	Motor Volume P.C.B. Ass'y (JPN)	1				
13	0B90348A	Fuse T5A 250V [F402] (USA, CAN)	1				
	0B90350A	Fuse T2.5A 250V [F402, F403] (EP)	2				
	0B90552A	Fuse 5A 250V [F402] (JPN)	1				
14	★ CA81729A	AC Outlet P.C.B. Ass'y (USA, CAN)	1				
	★ CA81745A	AC Outlet P.C.B. Ass'y (EP)	1				
	★ BA08227A	AC Outlet P.C.B. Ass'y (JPN)	1				
15	★ CA81728A	Speaker Terminal P.C.B. Ass'y (USA, CAN)	1				
	★ CA81744A	Speaker Terminal P.C.B. Ass'y (EP)	1				
	★ BA08226A	Speaker Terminal P.C.B. Ass'y (JPN)	1				
16	0B80199A	AC Power Cord (USA, CAN)	1				
	0B08093U	AC Power Cord (EP)	1				
	0B90274A	AC Power Cord (JPN)	1				
17	0B90280A	Cord Bushing	1				
18	0B81928A	AC Outlet (USA, CAN)	1				
	0B81987A	AC Outlet (EP)	1				
	0B81986A	AC Outlet (JPN)	1				
19	0B90316A	Antenna Holder	1				
20	JA04383A	Ground Terminal Ass'y	1				
21	0J05703A	Lug Terminal	1				
22	0C09584A	Antenna Terminal F (USA, CAN, JPN)	1				
	0B81979A	Antenna Terminal (EP)	1				
23	0C85445A	Ground Washer 10mm	1				
24	0C85442A	Lug Terminal	1				
25	0C85559A	Rear Panel (USA, CAN)	1				
	0C85775A	Rear Panel (EP)	1				
	0H06036A	Rear Panel (JPN)	1				
26	0C85599A	Insulator (EP)	1				
L01	0E00868A	BT3x8 ⊕ Binding					
L02	0E00857A	BT3x6 ⊕ Binding					
L03	0C85421A	ST4x6 ⊕ Binding Washer-faced					
L04	0E00896A	M3x6 ⊕ Binding					
L05	0E00860A	BT3x6 ⊕ Binding (Black Chromate)					
L06	0E00948A	BT3x10 ⊕ Binding (Black Chromate)					

5.4. Heat Sink Ass'y (B01)

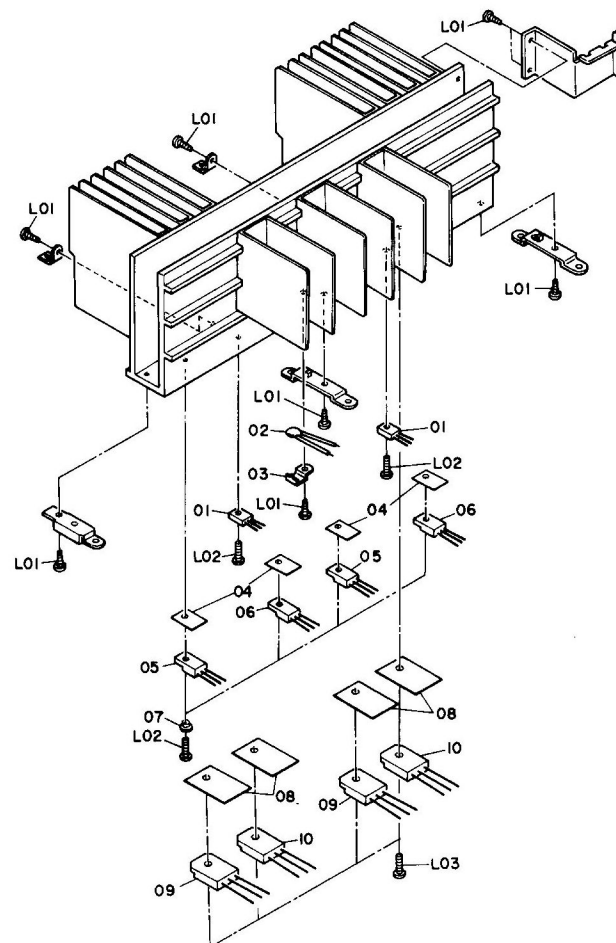


Fig. 5.4

6. MOUNTING DIAGRAMS AND PARTS LIST

- Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.
 2. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
 3. Following transistors are interchangeable with each other.
 a. 2SA733, 2SA608SP, 2SA1048, 2SA1175
 b. 2SC945, 2SC536SP, 2SC2458, 2SC2785
 4. Abbreviation for part name:
 TR — Transistor, SiD — Silicon Diode, ZD — Zener Diode, Varicap — Variable Capacitance Diode
 RK — Carbon Resistor, RM — Metal Film Resistor, RF — Fail Safe Type Resistor, RC — Cement Resistor
 CE — Electrolytic Capacitor, CML — Mylar Capacitor, CC — Ceramic Capacitor, CPP — PP Capacitor,
 CMM — Metalized Mylar Capacitor, CSP — Polystyrene Capacitor, C — Mica Capacitor
 CT — Tantalum Capacitor

6.1. AC Outlet P.C.B. Ass'y

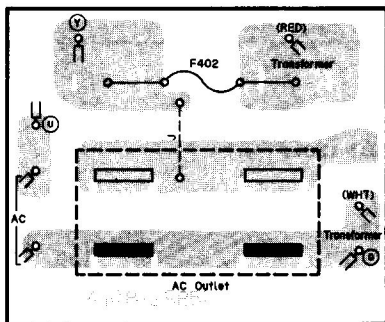


Fig. 6.1

6.2. Power Switch P.C.B. Ass'y

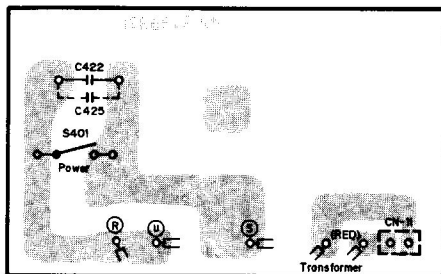


Fig. 6.2

6.3. Volume LED P.C.B. Ass'y



Fig. 6.3

6.4. Audio Mute P.C.B. Ass'y

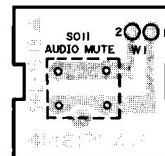


Fig. 6.4

★: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	
6.1. AC Outlet P.C.B. Ass'y			6.2. Power Switch P.C.B. Ass'y			6.3. Volume LED P.C.B. Ass'y			
★	CA81729A	AC Outlet P.C.B. Ass'y (USA, CAN)	★	CA81730A	Power Switch P.C.B. Ass'y (USA, CAN)	★	CA81715A	Volume LED P.C.B. Ass'y (USA, CAN)	
★	BA08227A	AC Outlet P.C.B. Ass'y (JPN)	★	BA08228A	Power Switch P.C.B. Ass'y (JPN)	★	BA08179A	Volume LED P.C.B. Ass'y (JPN)	
	OC85498B	AC Outlet P.C.B. Fuse Holder (2)	C422	OC85496B	Power Switch P.C.B. CC 0.01μ 400V (USA, CAN)	ED125	OC85494A	Volume LED P.C.B. LED SLR-34DC3F (USA, CAN)	
	OB81930A			OB41801A	CC 0.01μ 250V (JPN)			OC85387A	LED SLR-34MW3F (JPN)
				OB41987A	CC 0.01μ 400V (USA, CAN)			OB12710A	2P Connector Ass'y 200mm
			C425	OB41801A	CC 0.01μ 250V (JPN)	CN5	OC85405A		
			S401 CN11	OB41987A	Power Switch 2P S-Post	6.4. Audio Mute P.C.B. Ass'y			
				OB71011A	Power Switch Bracket (1)	S011 W-1	★	CA81713A	Audio Mute P.C.B. Ass'y (USA, CAN)
				OB81666A			★	BA08177A	Audio Mute P.C.B. Ass'y (JPN)
			OC85360A				OC85495A	Audio Mute P.C.B. Tact Switch	
							OB70130A	Ribbon Wire 2P	
							OC85497A		

6.5. Headphone P.C.B. Ass'y

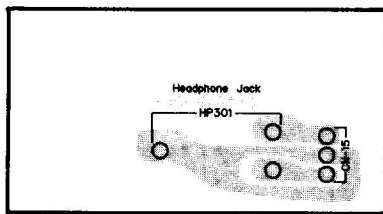


Fig. 6.5

6.6. Motor Volume P.C.B. Ass'y

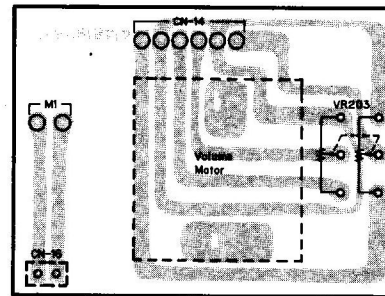


Fig. 6.6

6.7. Selector P.C.B. Ass'y

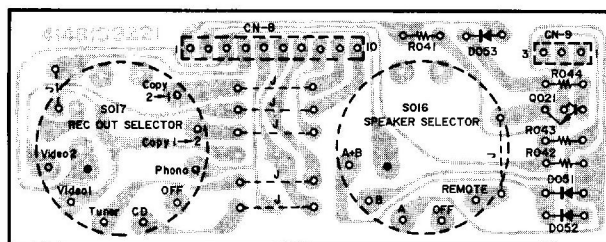


Fig. 6.7

6.8. Speaker Terminal P.C.B. Ass'y

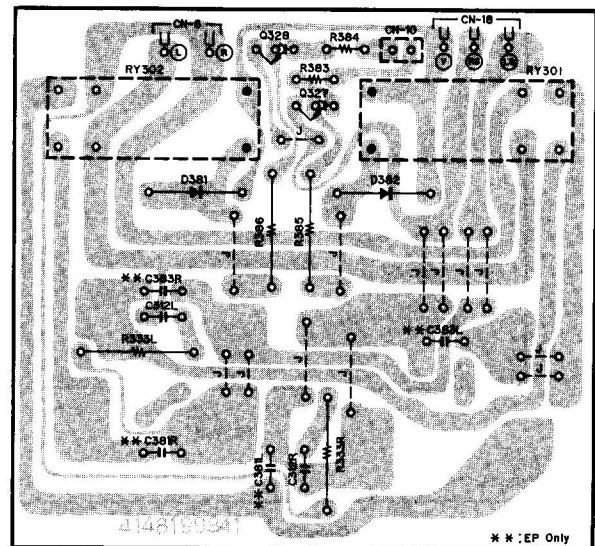


Fig. 6.8

★: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.5. Headphone P.C.B. Ass'y			6.7. Selector P.C.B. Ass'y			6.8. Speaker Terminal P.C.B. Ass'y		
CN15 HP301	★ CA81719A	Headphone P.C.B. Ass'y (USA, CAN)	Q021 D051,052 D053 R041 R042,043 S016	★ CA81726A	Selector P.C.B. Ass'y (USA, CAN)	Q327,328 D381,382 R333L,R R383,384 R385,386 C312L,R RY301,302 CN6	★ CA81728A	Speaker Terminal P.C.B. Ass'y (USA, CAN)
	★ BA08183A	Headphone P.C.B. Ass'y (JPN)		★ BA08224A	Selector P.C.B. Ass'y (JPN)		★ BA08226A	Speaker Terminal P.C.B. Ass'y (JPN)
	0C85502B 0C85503A 0B81757A	Headphone P.C.B. 3P Connector Ass'y 400mm Headphone Jack 400mm		0C85538A 0B06100A 0B06398A 0B06398A 0B09725A 0B09701A 0B09701A 0B70141A	Selector P.C.B. TR 2SC945 SID 1SS176 SID 1SS176 RK 100K 1/6W J RK 10K 1/6W J RK 10K 1/6W J Rotary Switch MSB15BP20LC		0C85548B	Speaker Terminal P.C.B.
6.6. Motor Volume P.C.B. Ass'y			6.7. Selector P.C.B. Ass'y			6.8. Speaker Terminal P.C.B. Ass'y		
VR203 CN14 CN16 W-2	★ CA81722A	Motor Volume P.C.B. Ass'y (USA, CAN)	S017 CN8 CN9	0B70143A	Rotary Switch MSB18BP	0B06142A 0B12586A 0B24181A 0B09701A 0B24107A 0B05796A 0B90331A 0C85546A 0B81666A 0C85545A	0B81666A 0C85545A	Speaker Terminal P.C.B. TR 2SC2240 (BL) SID 1N4002L RK 10 1W J RK 10K 1/6W J RF 1K 2W CML0.047μ50V J Relay VB-24MBU 4P Connector Ass'y 400mm 2P S-Post 8P Speaker Terminal (1)
	★ BA08186A	Motor Volume P.C.B. Ass'y (JPN)		0B81674A 0B81667A	10P S-Post 3P S-Post			
	0C85504B 0B85505A 0C85506A 0B81666A 0C85507A	Motor Volume P.C.B. Volume 50KBx2 6P Connector Ass'y 150mm 2P S-Post Ribbon Wire 2P						

6.9. Power Supply P.C.B. Ass'y

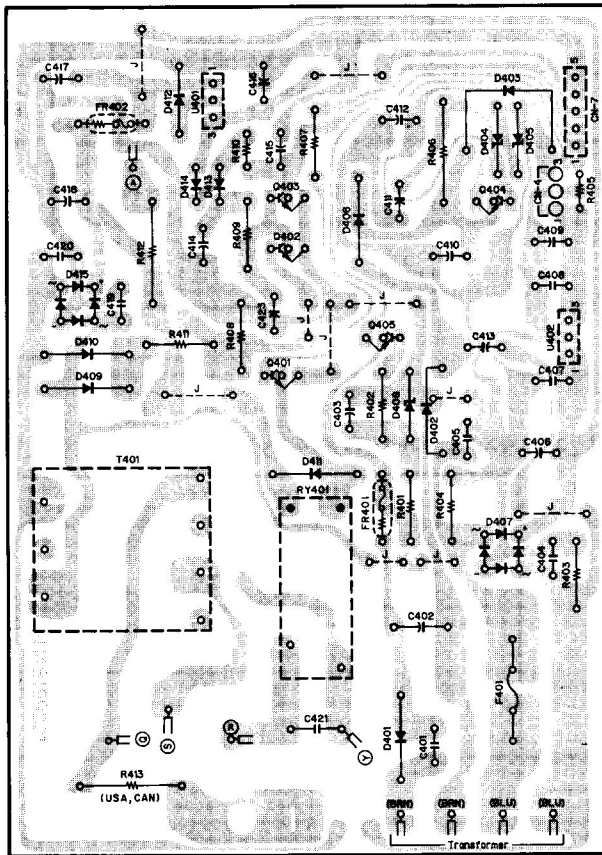


Fig. 6.9

★: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.9. Power Supply P.C.B. Ass'y			R410	OB09701A	RK 10K 1/6W J
★	CA81727A	Power Supply P.C.B. Ass'y (USA, CAN)	R411	OB01889A	RK 100K 1/4W J
	BA08225A	Power Supply P.C.B. Ass'y (JPN)	R412	OB24202A	RF 5.6 1W
			R413	OB05919A	RK 3.3M 1/2W (USA, CAN)
			RY401	OB90334A	Relay VS-12MB-VD3
U401	OC85544B	Power Supply P.C.B. IC MC7805T	C401	OB09387A	CC 0.047μ 50V Z
U402	OB11010A	IC MC7812	C402	OB40124A	CE 1000μ 50V
Q401,402	OB06100A	TR 2SC945	C403	OB09313A	CE 100μ 50V
Q403	OB10049A	TR 2SC2001	C404,405	OB09292A	CC 0.1μ 50V Z
Q404	OB06100A	TR 2SC945	C406	OB40095A	CE 1000μ 25V
Q405	OB10246A	TR 2SA965 (Y)	C407,408	OB09292A	CC 0.1μ 50V Z
ZD404,405	OB12104A	ZD 15V B3	C409	OB40079A	CE 220μ 16V
ZD408	OB12255A	ZD 33V B2	C411,412	OB09126A	CE 100μ 35V
D401,402	OB12586A	SID 1N4002L	C410	OB40123A	CE 470μ 50V
D403	OB12586A	SID 1N4002L	C413	OB40123A	CE 470μ 50V
D406	OB12586A	SID 1N4002L	C414	OB01400A	CE 100μ 16V
D407	OB12713A	SID W02G	C415	OB01674A	CE 10μ 25V
D409,410	OB12586A	SID 1N4002L	C416	OB40067A	CE 470μ 10V
D411,412	OB12586A	SID 1N4002L	C417	OB40079A	CE 220μ 16V
D413,414	OB06398A	SID 1SS176	C418	OB40082A	CE 1000μ 16V
D415	OB12713A	SID W02G	C419,420	OB09292A	CC 0.1μ 50V Z
FR401	OB24023A	Fuse Resistor 1 1/4W	C421	OB41829B	CC 4700P 400V
			C423	OB09372A	CE 2.2μ 50V
FR402	OB24088A	Fuse Resistor 10 1/4W	CN4	OC85542A	3P Connector Ass'y
			CN7	OB81762A	5P T-Post
R401	OB05622A	RK 2.2K 1/4W J		OB81848A	Fuse Holder (2)
R402	OB05577A	RK 330 1/4W J		OC85579A	Sub Power Transformer (USA, CAN) (1)
R403,404	OB01681A	RK 3.3K 1/4W J			Sub Power Transformer (JPN) (1)
R405	OB09685A	RK 2.2K 1/6W J		OC85587A	
R406	OB00346A	RK 1K 1/2W J			
R407	OB05622A	RK 2.2K 1/4W J		OJ05670A	Earth Plate (1)
R408	OB05641A	RK 47K 1/4W J			
R409	OB01888A	RK 10K 1/4W J			
			6.10. Display & Control P.C.B. Ass'y		
			★	CA81725A	Display & Control P.C.B. Ass'y (USA, CAN)
			★	BA08223A	Display & Control P.C.B. Ass'y (JPN)
				OC85537B	Display & Control P.C.B. IC
U001	OB11872A	μPD75208CW-A77			
U002	OB11530A	IC BA6208			
U003	OB11244A	IC LB1413N			
Q001,002	OB10328A	TR DTC114TF			
Q003,004	OB10328A	TR DTC114TF			
Q005,006	OB10328A	TR DTC114TF			
Q007,008	OB10325A	TR DTA114TF			
Q009	OB10327A	TR DTA114TF			
Q010,011	OB10325A	TR DTA114TF			
Q012	OB10325A	TR DTA114TF			
Q013,014	OB10057A	TR DTA114TS			
Q015,016	OB10057A	TR DTA114TS			
Q017,018	OB10062A	TR DTC144ES			
Q019	OB10062A	TR DTC144ES			
Q020	OB06100A	TR 2SC945			
Q021,022	OB10057A	TR DTA114TS			
Q023	OB10057A	TR DTA114TS			
ZD024	OB06232A	ZD 9.1V B2			
ZD025	OB12159A	ZD 7.5V B2			
ED027,028	OC85387A	LED SLR-34DC3F (USA, CAN)			
				OB12710A	LED SLR-34MW3F (JPN)
			ED029	OC85439A	LED SLR-34PC3F (USA, CAN)
				OC85387A	LED SLR-34DC3F (JPN)
D001,002	OB06398A	SID 1SS176			
D003	OB06398A	SID 1SS176			
D004	OB12584A	SID 1N4148			
D005,006	OB06398A	SID 1SS176			
D007,008	OB06398A	SID 1SS176			
D010,011	OB06398A	SID 1SS176			
D012,013	OB06398A	SID 1SS176			
D014	OB06398A	SID 1SS176			
D015	OB06398A	SID 1SS176			
D016,017	OB06398A	SID 1SS176			
D018	OB06398A	SID 1SS176			
D019	OB06398A	SID 1SS176			
D020,021	OB06398A	SID 1SS176			
D022,023	OB06398A	SID 1SS176			
D026	OB06398A	SID 1SS176			
D030,031	OB06398A	SID 1SS176			
D032,033	OB06398A	SID 1SS176			
D034,035	OB06398A	SID 1SS176			
D036,037	OB06398A	SID 1SS176			
D038	OB06398A	SID 1SS176			
D039	OB06398A	SID 1SS176			
D042	OB06398A	SID 1SS176			
D044	OB06398A	SID 1SS176			
D046	OB06398A	SID 1SS176			
D047	OB06398A	SID 1SS176			
D048,049	OB06398A	SID 1SS176 (JPN)			
X001	OB92031A	Resonator 4.19MHz			
L001	OB51291A	Choke Coil 470μ K			
RA001,002	OC85397A	R Array 100Kx9			
R003,004	OB09725A	RK 100K 1/6W J			
R005	OB09725A	RK 100K 1/6W J			
R006	OB09721A	RK 68K 1/6W J			
R007	OB09709A	RK 22K 1/6W J			
R008,009	OB09725A	RK 100K 1/6W J			
R010	OB09725A	RK 100K 1/6W J			
R011,012	OB09661A	RK 220 1/6W J			
R013,014	OB09701A	RK 10K 1/6W J			
R015	OB09661A	RK 220 1/6W J			
R016	OB09701A	RK 10K 1/6W J			
R017,018	OB09661A	RK 220 1/6W J			
R019	OB09701A	RK 10K 1/6W J			
R020,021	OB09701A	RK 10K 1/6W J			
R022,023	OB09701A	RK 10K 1/6W J			
R024,025	OB09701A	RK 10K 1/6W J			
R026	OB09701A	RK 10K 1/6W J			
R027	OB09677A	RK 1K 1/6W J			
R028	OB09723A	RK 82K 1/6W J			
R030,031	OB09701A	RK 10K 1/6W J			
R032,033	OB09701A	RK 10K 1/6W J			
R034,035	OB09701A	RK 10K 1/6W J			
R036	OB09701A	RK 10K 1/6W J			
R039	OB09711A	RK 27K 1/6W J			

*: Unstocked parts.

Schematic Ref. No.	Part No.	Description
C001	OB09291A	CC 0.022μ 50V Z
C002	OB01405A	CE 1μ 50V
C003,004	OB41740A	CC 33P 50V J
C005	OB09292A	CC 0.1μ 50V Z
C006	OB09291A	CC 0.022μ 50V Z
C007	OB09292A	CC 0.1μ 50V Z
C008,009	OB01412A	CE 10μ 16V
C010	OB01403A	CE 47μ 16V
C034	OB05885A	CE 100/10 T
C035	OB09292A	CC 0.1μ 50V Z
S001,002	OC85398A	Tact Switch
S003,004	OC85398A	Tact Switch
S005,006	OC85398A	Tact Switch
S007,008	OC85398A	Tact Switch
S009,010	OB70130A	Tact Switch
S012,013	OC85398A	Tact Switch
S014,015	OC85398A	Tact Switch
FL001	OB90463A	FL Display
CN1	OC85533A	8P Connector Ass'y 300mm
CN2	OC85531A	4P Connector Ass'y 300mm
CN3	OB83493A	3P Connector Ass'y 250mm
CN7	OC85532A	5P Connector Ass'y 500mm
CN8	OC85570A	10P Connector Ass'y 150mm
CN9	OB83494A	3P Connector Ass'y 350mm
CN10	OC85529A	2P Connector Ass'y 500mm
CN11	OC85528A	2P Connector Ass'y 200mm
CN12	OC85568A	8P Connector Ass'y 500mm
CN13	OC85569A	6P Connector Ass'y 400mm
CN16	OC85536A	2P Connector Ass'y 150mm
	OC85399A	Remote Control Receiver SBX-1610

6.10. Display & Control P.C.B. Ass'y

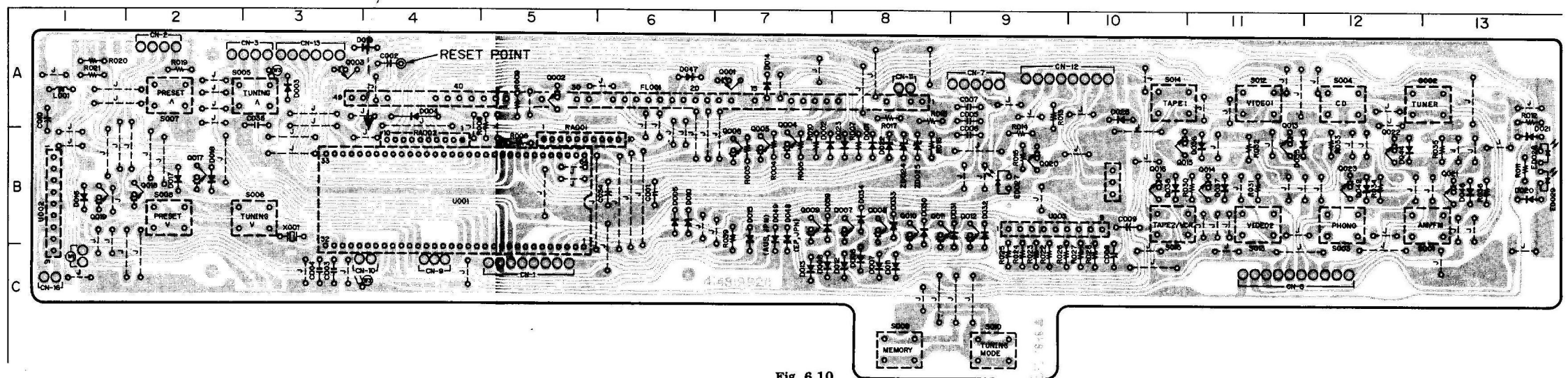


Fig. 6.10

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
U001	B-4	Q007	B-8	Q016	B-10	ZD025	B-8	D006	C-8	D016	B-1	D030	B-8	D039	B-7
U002	B-1	Q008	B-8	Q017	B-2	ED027	B-9	D007	C-8	D017	B-2	D031	B-9	D042	B-12
U003	B-9	Q009	B-7	Q018	B-2	ED028	B-13	D008	C-7	D018	B-2	D032	B-9	D044	B-12
Q001	A-7	Q010	B-8	Q019	B-1	ED029	B-29	D010	B-6	D019	A-4	D033	B-8	D046	B-13
Q002	A-5	Q011	B-8	Q020	B-9	D001	B-8	D011	C-8	D020	B-13	D034	B-8	D047	A-6
Q003	A-3	Q012	B-9	Q021	B-13	D002	B-7	D012	C-8	D021	B-13	D035	B-11	D048	B-7
Q004	B-7	Q013	B-11	Q022	B-12	D003	A-3	D013	C-7	D022	B-8	D036	B-11	D049	B-7
Q005	B-7	Q014	B-11	Q023	B-12	D004	A-4	D014	A-7	D023	B-8	D037	B-11		
Q006	B-7	Q015	B-10	ZD024	B-8	D005	B-6	D015	B-7	D026	A-10	D038	B-10		

6.11. System Remote P.C.B. Ass'y

* CA81731A	System Remote P.C.B. Ass'y (USA, CAN)
* BA08229A	System Remote P.C.B. Ass'y (JPN)
OC85540A	System Remote P.C.B.
U601,602	OB06169A IC TC4066BP
U701	OB06143A IC μPD4001BC
U702	OB06219A IC μPD4081BC
Q601	OB06452A TR 2SD1406
Q602	OB06100A TR 2SC945
Q603	OB06013A TR 2SA733
Q604,605	OB06100A TR 2SC945
Q606	OB06013A TR 2SA733
Q607	OB06100A TR 2SC945
Q701	OB10113A TR 2SC1815 (G)
Q702	OB06013A TR 2SA733
Q703	OB10113A TR 2SC1815 (G)
Q704,705	OB06100A TR 2SC945
Q706,707	OB06100A TR 2SC945
Q708	OB06100A TR 2SC945
Q709	OB10104A TR DTC114TS
ZD602	OB12390A ZD 13V B3
D431	OB12626A SID KBU6D
D432	OB12586A SID 1N4002L
D601	OB12713A SID W02G
D603,604	OB06398A SID 1SS176
D701,702	OB06398A SID 1SS176
D703,704	OB06398A SID 1SS176
D705,706	OB06398A SID 1SS176
D707,708	OB06398A SID 1SS176
D709,710	OB06398A SID 1SS176
D711,712	OB06398A SID 1SS176
D713,714	OB06398A SID 1SS176
D715	OB06398A SID 1SS176
R431	OB05615A RK 22K 1/4W J
R601	OB09677A RK 1K 1/6W J
R602	OB01857A RK 1K 1/4W J
R603	OB09701A RK 10K 1/6W J
R604	OB09649A RK 68 1/6W J
R605	OB09661A RK 220 1/6W J

Schematic Ref. No.	Part No.	Description
R606	OB09653A	RK 100 1/6W J
R607	OB09683A	RK 1.8K 1/6W J
R608	OB09669A	RK 470 1/6W J
R609	OB09671A	RK 560 1/6W J
R610	OB09665A	RK 330 1/6W J
R611	OB09677A	RK 1K 1/6W J
R612	OB09679A	RK 1.2K 1/6W J
R613	OB09691A	RK 3.9K 1/6W J
R614	OB09651A	RK 82 1/6W J
R615	OB09701A	RK 10K 1/6W J
R616	OB09649A	RK 68 1/6W J
R617	OB09661A	RK 220 1/6W J
R618	OB09653A	RK 100 1/6W J
R619	OB09683A	RK 1.8K 1/6W J
R620	OB09669A	RK 470 1/6W J
R621	OB09671A	RK 560 1/6W J
R622	OB09665A	RK 330 1/6W J
R623	OB09677A	RK 1K 1/6W J
R624	OB09679A	RK 1.2K 1/6W J
R625	OB09691A	RK 3.9K 1/6W J
R626	OB09651A	RK 82 1/6W J
R627,628	OB09749A	RK 1M 1/6W J
R629,630	OB09749A	RK 1M 1/6W J
R631,632	OB09749A	RK 1M 1/6W J
R633,634	OB09650A	RK 75 1/6W J
R635	OB09650A	RK 75 1/6W J
R636	OB09725A	RK 100K 1/6W J
R701	OB09693A	RK 4.7K 1/6W J
R702	OB09733A	RK 220K 1/6W J
R703	OB09701A	RK 10K 1/6W J
R704	OB09685A	RK 2.2K 1/6W J
R705	OB09731A	RK 180K 1/6W J
R706	OB20093A	RK 1.5M 1/6W J
R707	OB09739A	RK 390K 1/6W J
R708	OB09701A	RK 10K 1/6W J
R709	OB09709A	RK 22K 1/6W J
R710	OB09725A	RK 100K 1/6W J
R711	OB09701A	RK 10K 1/6W J
R712,713	OB09693A	RK 4.7K 1/6W J
R714	OB09677A	RK 1K 1/6W J
R715	OB09717A	RK 47K 1/6W J
R716	OB09701A	RK 10K 1/6W J
R717,718	OB09701A	RK 10K 1/6W J
R719,720	OB09717A	RK 47K 1/6W J

Schematic Ref. No.	Part No.	Description
R721,722	OB09701A	RK 10K 1/6W J
R724	OB09637A	RK 22 1/6W J
R726	OB09637A	RK 22 1/6W J
R728	OB09661A	RK 220 1/6W J
R729	OB09717A	RK 47K 1/6W J
R730	OB09701A	RK 10K 1/6W J
R731	OB09677A	RK 1K 1/6W J
R732	OB09717A	RK 47K 1/6W J
FR601	OC85552A	Fuse Resistor 1 1/4W
C431,432	OB41901A	CC 0.022μ 500V Z
C433,434	OB40519A	CE 10000μ 63V
C435,436	OB41176A	CMI.0.22μ 63V J
C437	OB40029A	CE 4.7μ 50V
C601,602	OB09292A	CC 0.1μ 50V Z
C603	OB40094A	CE 470P 25V
C604	OB40079A	CE 220μ 16V
C605	OB01400A	CE 100μ 16V
C606	OB40082A	CE 1000P 16V
C607	OB01400A	CE 100μ 16V
C608	OB41496A	CC 220P 50V J
C609	OB09276A	CC 5P 50V C
C610	OB40082A	CE 1000P 16V
C611	OB01400A	CE 100μ 16V
C612	OB41496A	CC 220P 50V J
C613	OB09276A	CC 5P 50V C
C614,615	OB40075A	CE 22μ 16V
C616,617	OB40075A	CE 22μ 16V
C618	OB40075A	CE 22μ 16V
C701	OB09290A	CC 0.01μ 50V Z
C702	OB09187A	CE 1μ 50V (BP)
C703	OB40029A	CE 4.7μ 50V
CN12	OB81765A	8P 1-Post
CN13	OB81763A	6P 1-Post
CN18	OB81975A	2P 1-Post
	OB81952A	Stereo Mini Jack HTJ085-11 (3)
	OB81953A	6P 1in Socket (1)
	OB05670A	Earth Plate (1)
	OB81947A	1P 1in Jack (5)

6.11. System Remote P.C.B. Ass'y

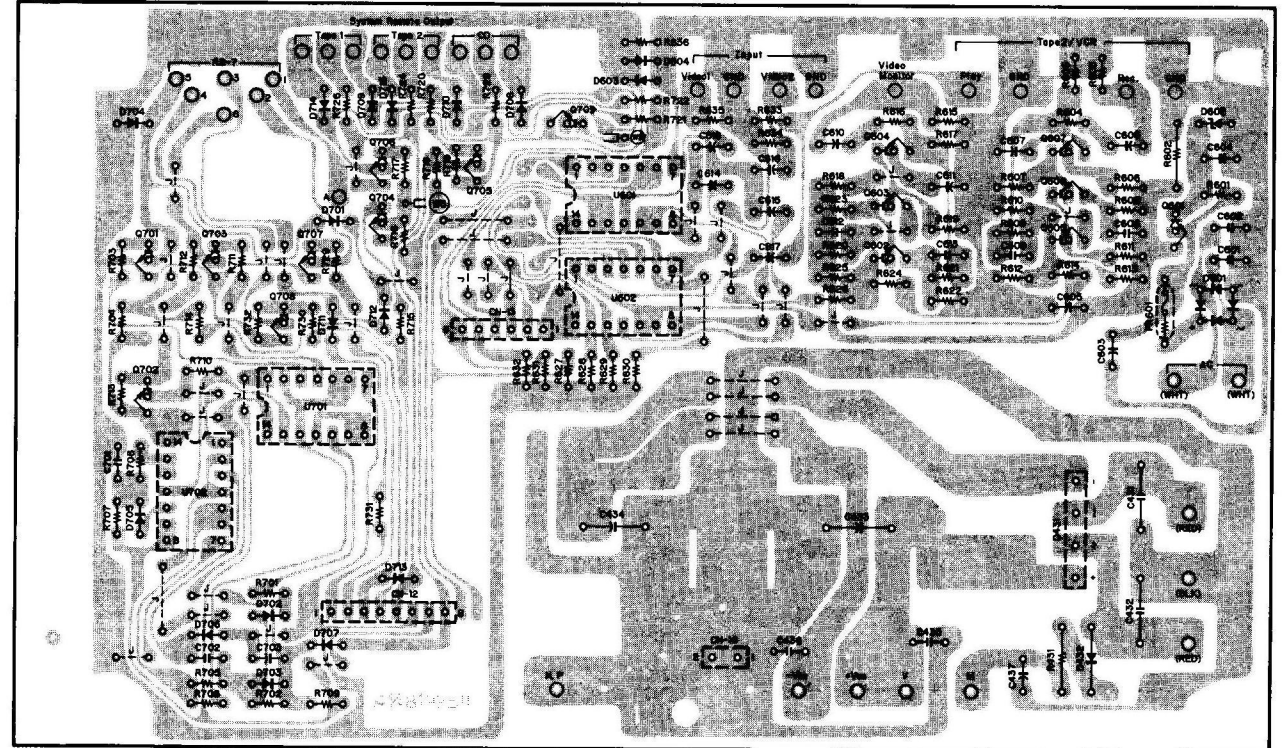
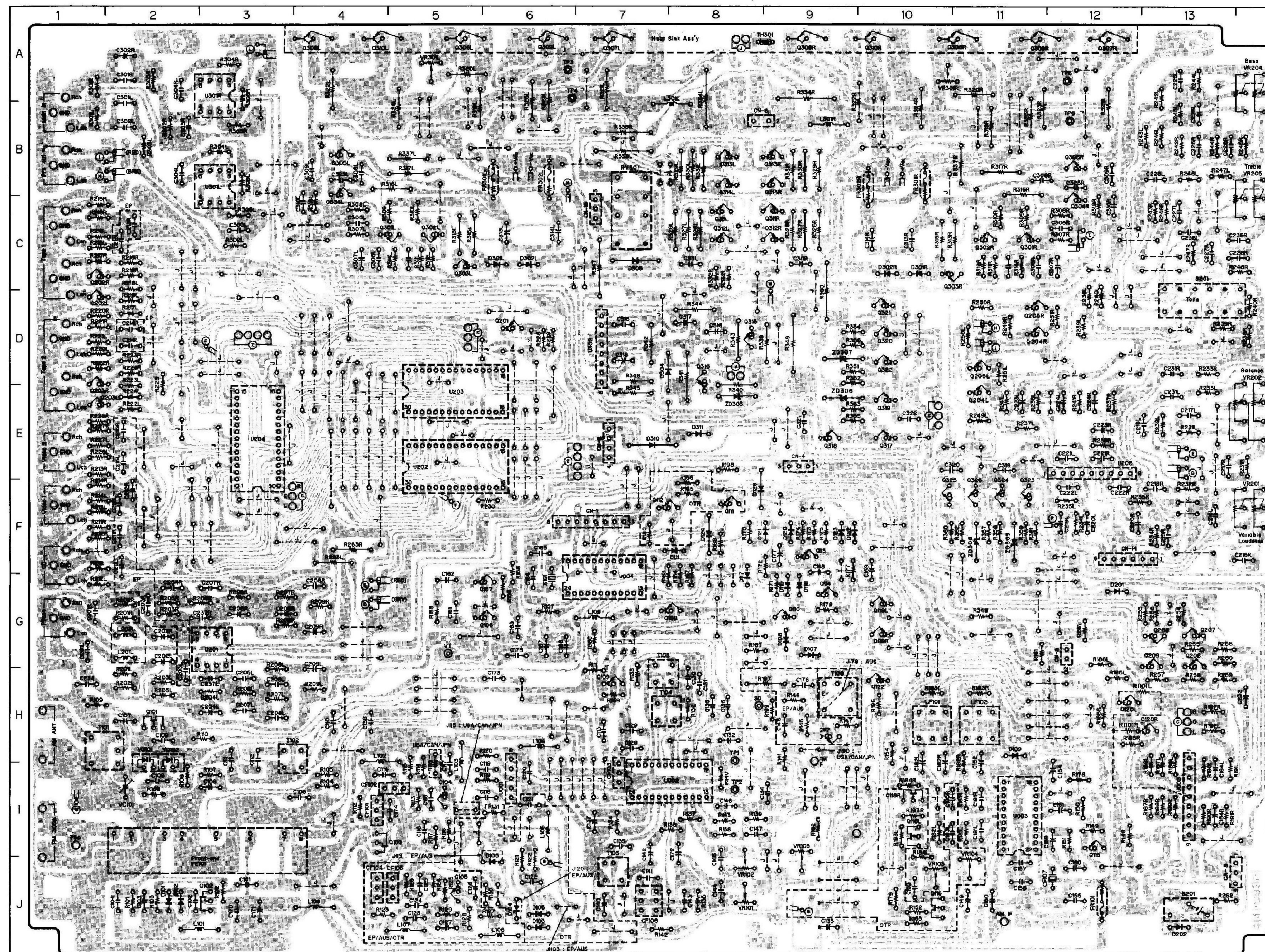


Fig. 6.11

6.12. Main P.C.B. Ass'y



• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
U001	I-6	Q310L	A-4
U002	I-7	Q310R	A-10
U003	I-11	Q311L	C-8
U004	G-7	Q311R	C-9
U005	I-13	Q312L	C-8
U201	G-3	Q312R	C-9
U202	E-5	Q313L	B-8
U203	E-5	Q313R	B-9
U204	E-3	Q314L	B-8
U205	E-12	Q314R	B-9
U301L	B-3	Q315	D-8
U301R	A-3	Q316	D-8
U302	D-7	Q317	E-10
Q101	H-2	Q318	E-9
Q102	J-3	Q319	E-10
Q103	I-4	Q320	D-10
Q104	I-5	Q321	D-10
Q105	J-5	Q322	D-10
Q106	G-6	Q323	F-10
Q107	G-6	Q324	F-10
Q108	G-7	Q325	F-10
Q109	H-7	Q326	F-10
Q110	G-9	VD101	H-2
Q111	F-8	VD102	H-2
Q112	F-7	ZD303	E-8
Q113	F-9	ZD306	E-9
Q114	G-9	ZD307	D-9
Q115	I-12	ZD308	F-11
Q116	J-10	ZD309	F-11
Q117	H-9	D101	J-2
Q118L	I-10	D102	J-2
Q118R	I-10	D103	J-6
Q119L	G-10	D104	J-6
Q119R	G-10	D105	J-6
Q120L	H-12	D106	J-6
Q120R	H-13	D107	G-9
Q122	H-10	D108	G-9
Q201	D-6	D109	H-11
Q202L	D-1	D111	F-8
Q202R	C-1	D117	G-8
Q203L	E-1	D118	G-9
Q203R	E-1	D119	G-9
Q204L	E-11	D120	F-9
Q204R	D-11	D121	F-8
Q205L	D-11	D122	F-9
Q205R	D-11	D123	F-9
Q206	G-13	D124	F-8
Q207	G-13	D126	F-8
Q208	G-13	D201	G-12
Q209	G-13	D202	J-13
Q301L	C-5	D301L	C-6
Q301R	C-11	D301R	C-10
Q302L	C-5	D302L	C-6
Q302R	C-11	D302R	C-10
Q303L	C-5	D304	D-7
Q303R	C-10	D305	C-7
Q304L	B-4	D310	E-7
Q304R	C-12	D311	E-8
Q305L	B-4		
Q305R	B-12		
Q306L	A-5		
Q306R	A-11		
Q307L	A-7		
Q307R	A-12		
Q308L	A-4		
Q308R	A-9		
Q309L	A-5		
Q309R	A-11		

Note: Q306L/R - Q310L/R and TH301 are mounted on the Heat Sink Ass'y.

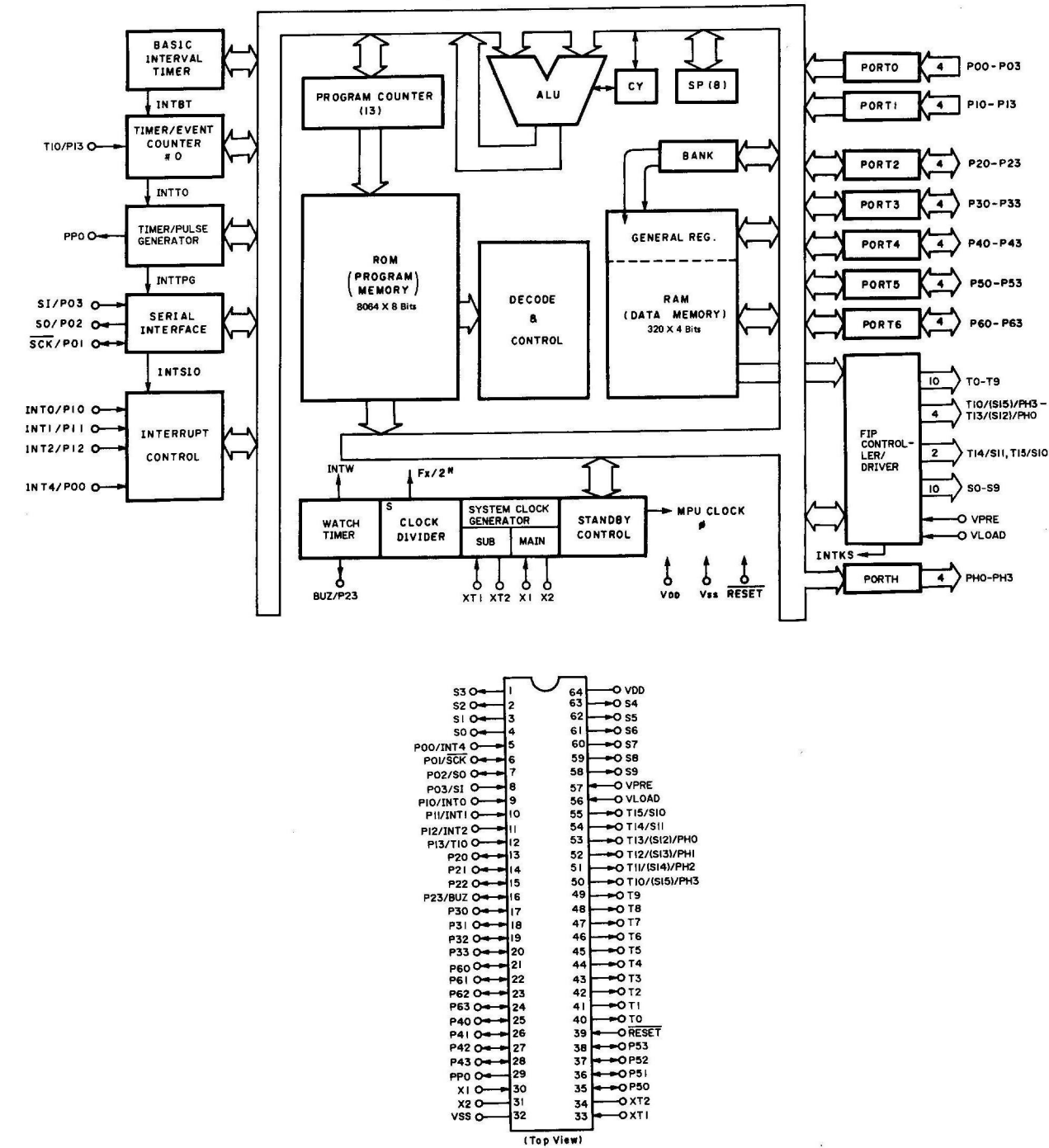
Fig. 6.12

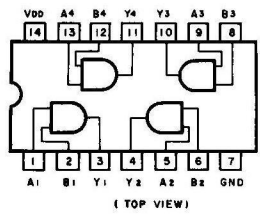
*: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.12. Main P.C.B. Ass'y			T101	OB51269A	AM Ant Coil	R204L,R	OB22229A	RM 1K 1/6W F	R332L,R	OB09731A	RK 180K 1/6W J	C177	OB40023A	CE 0.22μ 50V
	* CA81724A	Main P.C.B. Ass'y (USA, CAN)	T102	OB51270A	AM OSC Coil	R205L,R	OB09725A	RK 100K 1/6W J	R334L,R	OB24229A	RF 3.3 1W	C181L,R	OB41921A	CSP 560P 50V J (USA, CAN)
	* BA08222A	Main P.C.B. Ass'y (JPN)	T103	OB51271A	AM IFT	R206L,R	OB22542A	RM 560K 1/6W F	R337L,R	OB09334A	RK 11K 1/4W J		OB41215A	CPP 390P 100V J (JPN)
			T104	OB51272A	TWS-358-645 FM DET (A)	R207L,R	OB22419A	RM 47K 1/6W F	R338L,R	OB24208A	RF 330 2W			
			T105	OB51273A	TWS-358-636 FM DET (B)	R208L,R	OB22229A	RM 1K 1/6W F	R339	OB01888A	RK 10K 1/4W J			
U001	OC85527A	Main P.C.B.				R209L,R	OB09725A	RK 100K 1/6W J	R340	OB01682A	RK 6.8K 1/4W J	C182L,R	OB09148A	CE 10μ 25V (LN)
U002	OB11156A	IC TA7060AP				R211L,R	OB09645A	RK 47 1/6W J	R341	OB20520A	RK 1.5K 1/2W J	C184L,R	OB09148A	CE 10μ 25V (LN)
U003	OB11875A	IC LA1266	L101,102	OB51274A	Coil 22μH K	R212L,R	OB09719A	RK 56K 1/6W J	R342	OB09391A	RK 91K 1/4W J	C201L,R	OB41894A	CSP 100P 50V J
U004	OB11876A	IC LA3401	L103,104	OB51274A	Coil 22μH K	R213L,R	OB09645A	RK 47 1/6W J	R343	OB01933A	RK 220 1/4W J	C202L,R	OB09223A	CE 1μ 50V (LN)
U005	OB11877A	IC LC7218	L108,109	OB51274A	Coil 22μH K	R214L,R	OB09719A	RK 56K 1/6W J	R344	OB01889A	RK 100K 1/4W J	C204L,R	OB09148A	CE 10μ 25V (LN)
U201	OB11050A	IC NJM4558S	L301L,R	OC85512A	Audio Coil 0.8μH	R215L,R	OB09645A	RK 47 1/6W J	R345	OB05560A	RK 18K 1/4W J	C205L,R	OB41141A	CPP 4700P 100V G
U202	OB06387A	IC NJM2043DD	VR101,102	OC85452A	Semi VR 100K	R216L,R	OB09719A	RK 56K 1/6W J	R346	OB05508A	RK 56K 1/4W J	C206L,R	OB41129A	CPP 1500P 100V G
U203,204	OB11878A	IC LC7821	VR103	OC85452A	Semi VR 100K	R217L,R	OB09681A	RK 1.5K 1/6W J	R347	OB24248A	RF 3.3K 1W	C207L,R	OB41117A	CPP 470P 100V G
U205	OB11879A	IC LC7822N	VR105	OC85452A	Semi VR 100K	R218L,R	OB09725A	RK 100K 1/6W J	R348	OB09717A	RK 47K 1/6W J	C208L,R	OB41105A	CPP 150P 100V G
U301L,R	OB11577A	IC μPC4570HA	VR201	OB30088A	Volume 250K (MN)x2	R219L,R	OB09717A	RK 47K 1/6W J	R349,350	OB24357A	RC 220 5W	C209L,R	OB09223A	CE 1μ 50V (LN)
U302	OB11246A	IC μPC1237H	VR202	OB30097A	Volume 300Kx2	R220L,R	OB09645A	RK 47 1/6W J	R351,352	OB09685A	RK 2.2K 1/6W J	C216L,R	OB09279A	CC 22P 50V J
Q101	OB10181A	FET 2SK117 (GR)	VR204	OB30095A	Volume 50Kx2	R221L,R	OB09719A	RK 56K 1/6W J	R353,354	OB09685A	RK 2.2K 1/6W J	C217L,R	OB05550A	CML1000P 50V J
Q102,103	OB10127A	FET 2SK241 (GR)	VR205	OB30090A	Volume 100Kx2	R222L,R	OB09717A	RK 47K 1/6W J	R355,356	OB09673A	RK 680 1/6W J	C218L,R	OB05582A	CML0.022μ 50V J
Q104	OB06115A	TR 2SC1675 (L)	VR301L,R	OC85510A	Semi VR 1K	R223L,R	OB09717A	RK 47K 1/6W J	R359,360	OB09673A	RK 680 1/6W J	C219L,R	OB09322A	CPP 330P 100V J
Q106,107	OB06100A	TR 2SC945	R101	OB09729A	RK 150K 1/6W J	R224L,R	OB09717A	RK 47K 1/6W J	R361,362	OB09677A	RK 1K 1/6W J	C220L,R	OB41378A	CML0.39μ 50V J
Q108	OB10053A	TR DTA144ES	R102	OB09733A	RK 220K 1/6W J	R225	OB09725A	RK 100K 1/6W J	R1101L,R	OB09725A	RK 100K 1/6W J	C221L,R	OB41735A	CC 100P 50V J
Q109	OB06013A	TR 2SA733	R103	OB09749A	RK 1M 1/6W J	R226L,R	OB09645A	RK 47 1/6W J	FR101	OB24358A	Fuse Resistor 47 1/4W	C222L,R	OB41907A	CC 47P 50V J
Q110	OB10053A	TR DTA144ES	R104	OB09677A	RK 1K 1/6W J	R227L,R	OB09719A	RK 56K 1/6W J				C223L,R	OB09333A	CE 4.7μ 50V (LN)
Q113	OB06100A	TR 2SC945	R105,106	OB09725A	RK 100K 1/6W J	R228,228	OB09717A	RK 47K 1/6W J	FR301L,R	OB24358A	Fuse Resistor 47 1/4W	C224L,R	OB09332A	CE 2.2μ 50V (LN)
Q114	OB06013A	TR 2SA733	R107,108	OB09725A	RK 100K 1/6W J	R230	OB09717A	RK 47K 1/6W J	FR302L,R	OB24358A	Fuse Resistor 47 1/4W	C225L,R	OB05682A	CML0.068μ 50V Z
Q115	OB06100A	TR 2SC945	R109	OB09733A	RK 1M 1/6W J	R231L,R	OB09717A	RK 47K 1/6W J				C226L,R	OB41378A	CML0.39μ 50V J
Q119L,R	OB10053A	TR DTA144ES	R110	OB09667A	RK 390 1/6W J	R232L,R	OB09699A	RK 8.2K 1/6W J	VC101	OB42010A	C Trimmer 10P	C227L,R	OB09189A	CML2700P 50V J
Q120L,R	OB06299A	TR 2SC2878	R111,112	OB09661A	RK 220 1/6W J	R233L,R	OB09707A	RK 18K 1/6W J	C101	OB41735A	CC 100P 50V J	C228L,R	OB05832A	CML0.018μ 50V J
Q122	OB06100A	TR 2SC945	R113	OB09667A	RK 390 1/6W J	R234L,R	OB09653A	RK 100 1/6W J	C102	OB09290A	CC 0.01μ 50V Z	C231L,R	OB41476A	CML0.1μ 63V J
Q201	OB06013A	TR 2SA733	R114	OB22329A	RM 7.5K 1/6W F	R235L,R	OB09729A	RK 150K 1/6W J	C103	OB05583A	CML0.033μ 50V J	C232	OB40079A	CE 220μ 16V
Q202L,R	OB06299A	TR 2SC2878	R115	OB22270A	RM 2.4K 1/6W F	R236L,R	OB09743A	RK 560K 1/6W J	C104	OB09292A	CC 0.1μ 50V Z	C233	OB01780A	CML0.1μ 50V J
Q203L,R	OB06299A	TR 2SC2878	R116	OB09645A	RK 47 1/6W J	R237L,R	OB22457A	RM 100K 1/6W F	C105	OB09387A	CC 0.047μ 50V Z	C234	OB41495A	CC 180P 50V J
Q204L,R	OB06299A	TR 2SC2878	R117	OB09667A	RK 390 1/6W J	R238L,R	OB22351A	RM 12K 1/6W F	C106,107	OB09291A	CC 0.022μ 50V Z	C236L,R	OB41894A	CSP 100P 50V J
Q205L,R	OB06299A	TR 2SC2878	R118	OB09665A	RK 330 1/6W J	R239L,R	OB22351A	RM 12K 1/6W F	C108	OB09291A	CC 0.022μ 50V Z	C237L,R	OB05796A	CML 0.047μ 50V J
Q206	OB06013A	TR 2SA733	R119,120	OB09667A	RK 390 1/6W J	R240L,R	OB09703A	RK 12K 1/6W J	C109	OB41735A	CC 100P 50V J	C301L,R	OB09333A	CE 4.7μ 50V (LN)
Q207	OB06100A	TR 2SC945	R132	OB09695A	RK 5.6K 1/6W J	R241L,R	OB09669A	RK 470 1/6W J	C110	OB09291A	CC 0.022μ 50V Z	C302L,R	OB41221A	CPP 680P 100V J
Q208	OB06013A	TR 2SA733	R133	OB09689A	RK 3.3K 1/6W J	R242L,R	OB09723A	RK 82K 1/6W J	C111	OB09276A	CC 5P 50V C	C303L,R	OB05914A	CML0.15μ 50V J
Q209	OB06100A	TR 2SC945	R134	OB09677A	RK 1K 1/6W J	R243L,R	OB09705A	RK 15K 1/6W J	C112	OB41896A	CSP 390P 50V J	C305L,R	OB05550A	CML1000P 50V J
Q301L,R	OB06142A	TR 2SC2240 (BL)	R135	OB09689A	RK 3.3K 1/6W J	R244L,R	OB09708A	RK 2K 1/6W J	C113	OB09291A	CC 0.022μ 50V Z	C306L,R	OB05796A	CML0.047μ 50V J
Q302L,R	OB06142A	TR 2SC2240 (BL)	R136	OB09689A	RK 3.3K 1/6W J	R245L,R	OB09687A	RK 2.7K 1/6W J	C114,115	OB09291A	CC 0.022μ 50V Z	C307L,R	OB01403A	CE 47μ 16V
Q303L,R	OB06142A	TR 2SC2240 (BL)	R137,137	OB09701A	RK 10K 1/6W J	R246L,R	OB09673A	RK 680 1/6W J	C116,117	OB09291A	CC 0.022μ 50V Z	C308L,R	OB09279A	CC 22P 50V J
Q304L,R	OB10204A	TR 2SA1145	R138,139	OB09689A	RK 3.3K 1/6W J	R247L,R	OB09701A	RK 10K 1/6W J	C118,119	OB09291A	CC 0.022μ 50V Z	C309L,R	OB05914A	CML0.15μ 50V J
Q305L,R	OB10205A	TR 2SC2705	R140	OB09707A	RK 18K 1/6W J	R248L,R	OB09701A	RK 10K 1/6W J	C120	OB09291A	CC 0.022μ 50V Z	C310L,R	OB41894A	CPP 100P 100V J
Q311L,R	OB06142A	TR 2SC2240 (BL)	R141	OB09687A	RK 2.7K 1/6W J	R249L,R	OB09701A	RK 10K 1/6W J	C121	OB09291A	CC 0.022μ 50V Z	C311L,R	OB09292A	CC 0.1μ 50V Z
Q312L,R	OB10050A	TR 2SA970 (BL)	R142	OB09689A	RK 3.3K 1/6W J	R250L,R	OB09653A	RK 100 1/6W J	C122,129	OB09291A	CC 0.022μ 50V Z	C313L,R	OB40132A	CE 220μ 63V
Q313L,R	OB10205A	TR 2SC2705	R143	OB09651A	RK 82 1/6W J	R251L,R	OB09725A	RK 100K 1/6W J	C130,131	OB09291A	CC 0.022μ 50V Z	C314L,R	OB40132A	CE 220μ 63V
Q314L,R	OB10050A	TR 2SA970 (BL)	R144,149	OB09719A	RK 56K 1/6W J	R252	OB09701A	RK 10K 1/6W J	C132	OB40024A	CE 0.33μ 50V	C315	OB40250A	CE 100μ 16V (BP)
Q315	OB06322A	TR 2SC2002 (K)	R150	OB09693A	RK 4.7K 1/6W J	R253,254	OB09725A	RK 100K 1/6W J	C133	OB40140A	CE 47μ 16V	C316	OB09148A	CE 10μ 25V (LN)
Q316	OB06372A	TR 2SA953	R151	OB09695A	RK 5.6K 1/6W J	R255	OB09701A	RK 10K 1/6W J	C134,135	OB41735A	CC 100P 50V J	C317	OB09332A	CE 2.2μ 50V (LN)
Q317,318	OB10248A	TR 2SD313 (E)	R152	OB09721A	RK 68K 1/6W J	R256	OB09717A	RK 47K 1/6W J	C136	OB09288A	CC 1000P 50V K	C318	OB01400A	CE 100μ 16V
Q319	OB06013A	TR 2SA733	R153	OB09699A	RK 8.2K 1/6W J	R257	OB09725A	RK 100K 1/6W J	C137	OB01674A	CE 10μ 25V	C319,320	OB09292A	CC 0.1μ 50V Z
Q320,321	OB10264A	TR 2SB507 (E)	R154	OB09701A	RK 10K 1/6W J	R258	OB09717A	RK 47K 1/6W J	C138	OB09291A	CC 0.022μ 50V Z	C321,322	OB01780A	CML0.1μ 50V J
Q322,323	OB06100A	TR 2SC945	R155	OB09699A	RK 8.2K 1/6W J	R259	OB09725A	RK 100K 1/6W J	C139	OB09387A	CC 0.047μ 50V Z	C323L,R	OB09393A	CC 68P 50V J
Q324,325	OB06013A	TR 2SA733	R156	OB09701A	RK 10K 1/6W J	R260	OB09717A	RK 47K 1/6W J	C140	OB01403A	CE 47μ 16V	RY301	OB90279A	Relay DS2Y-S-DC24V
Q326	OB06100A	TR 2SC945	R157	OB09697A	RK 6.8K 1/6W J	R261	OB09673A	RK 680 1/6W J	C141	OB41908A	CC 82P 50V J			FM Front-End
VD101,102	OB12606A	Varicap KV1236Z1	R158	OB09677A	RK 1K 1/6W J	R262	OB09665A	RK 330 1/6W J	C142	OB40029A	CE 4.7μ 50V	FE101	OB91027A	FE415-A03 (USA, CAN)
ZD303	OB26231A	ZD 11V B2	R159,160	OB09701A	RK 10K 1/6W J	R263L,R	OB09733A	RK 220K 1/6W J	C143	OB09291A	CC 0.022μ 50V Z	FE101	OB91032A	FM Front-End
ZD306,307	OB12627A	ZD 18V B2	R161	OB09677A	RK 1K 1/6W J	R301L,R	OB09709A	RK 22K 1/6W J	C144	OB40029A	CE 4.7μ 50V			FE415-J03 (JPN)
ZD308,309	OB12614A	ZD 12V B2	R162	OB09741A	RK 470K 1/6W J	R302L,R	OB09653A	RK 100 1/6W J	C145,146	OB09291A	CC 0.022μ 50V Z	S201	OC85511A	Push Switch
D101,102	OB06398A	SID 1SS176	R163,164	OB09701A	RK 10K 1/6W J	R303L,R	OB09725A	RK 100K 1/6W J	C147	OB09290A	CC 0.01μ 50V Z	CN1	OB81765A	8P T-Post
D107,108	OB06398A	SID 1SS176	R167,168	OB09725A	RK 100K 1/6W J	R304L,R	OB22265A	RM 2.2K 1/6W F	C149	OB09148A	CE 10μ 25V (LN)	CN2	OB81761A	4P T-Post
D109	OB06398A	SID 1SS176	R169	OB09701A	RK 10K 1/6W J	R305L,R	OB22314A	RM 5.6K 1/6W F	C150	OB05682A	CML0.068μ 50V Z	CN3,4	OB81760A	3P T-Post
D111	OB06398A	SID 1SS176	R170,171	OB09709A	RK 22K 1/6W J	R306L,R	OB09677A	RK 1K 1/6W J	C151	OB01405A	CE 1μ 50V	CN5	OB81759A	2P T-Post
D117,118	OB06398A	SID 1SS176	R172	OB09719A	RK 56K 1/6W J	R307L,R	OB09701A	RK 10K 1/6W J	C152,153	OB01674A	CE 10μ 25V	CN6	OB81975A	2P T-Post
D119,120	OB06398A	SID 1SS176	R173	OB09701A	RK 10K 1/6W J	R308L,R	OB09671A	RK 560 1/6W J	C154	OB01405A	CE 1μ 50V	CN14	OB81763A	6P T-Post
D121,122	OB06398A	SID 1SS176	R174	OB09725A	RK 100K 1/6W J	R309L,R	OB09647A	RK 56 1/6W J	C155	OB09291				

7. SCHEMATIC DIAGRAMS

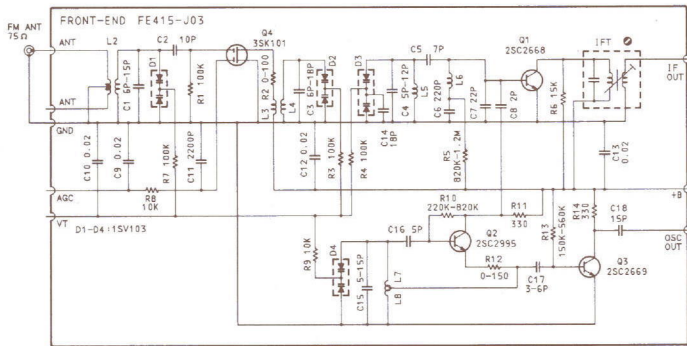
7.1. IC Block Diagrams



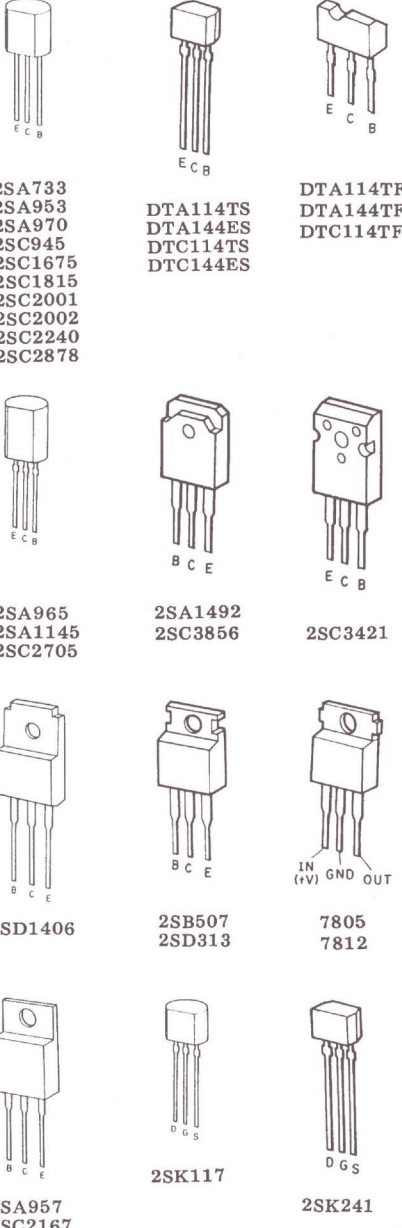
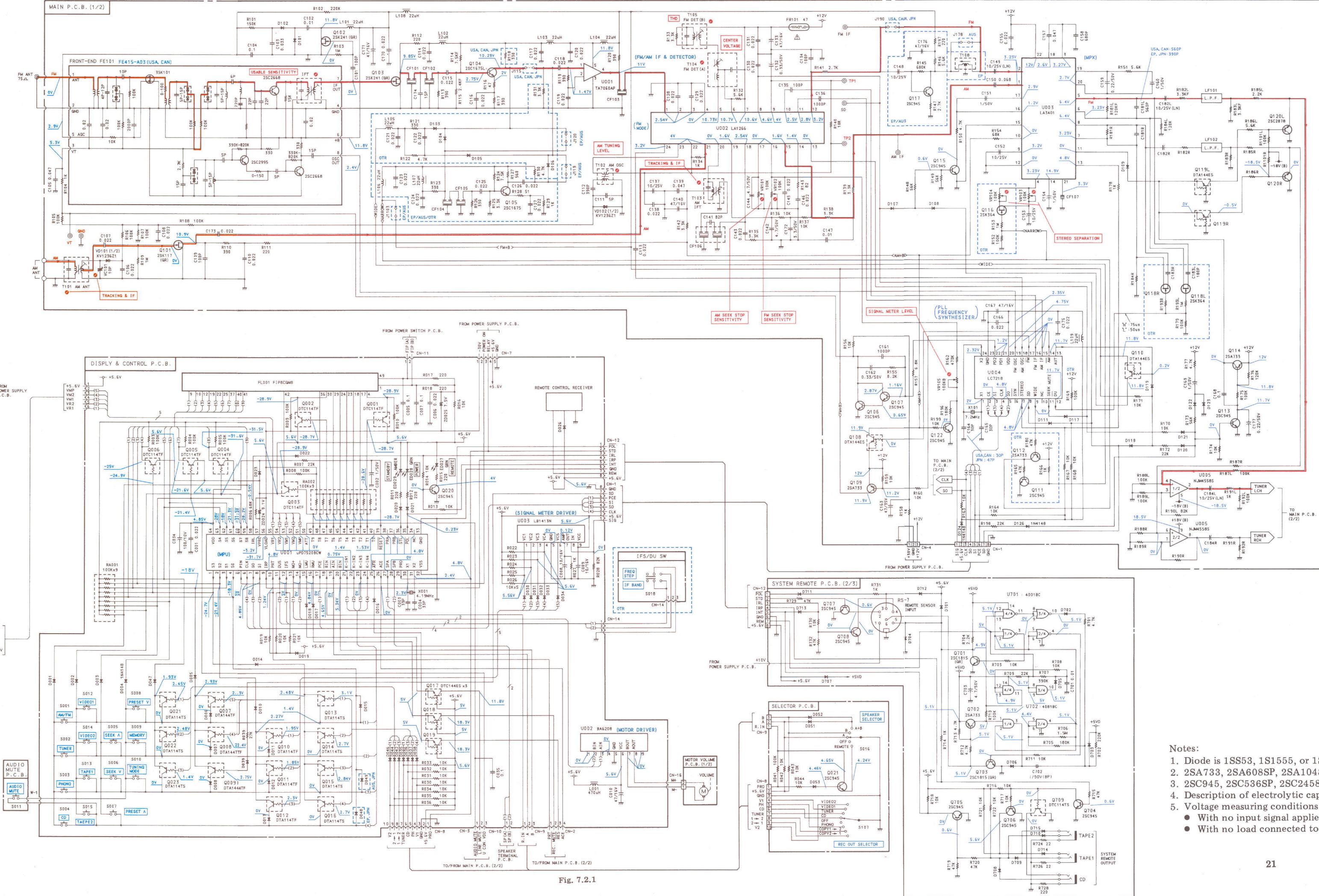
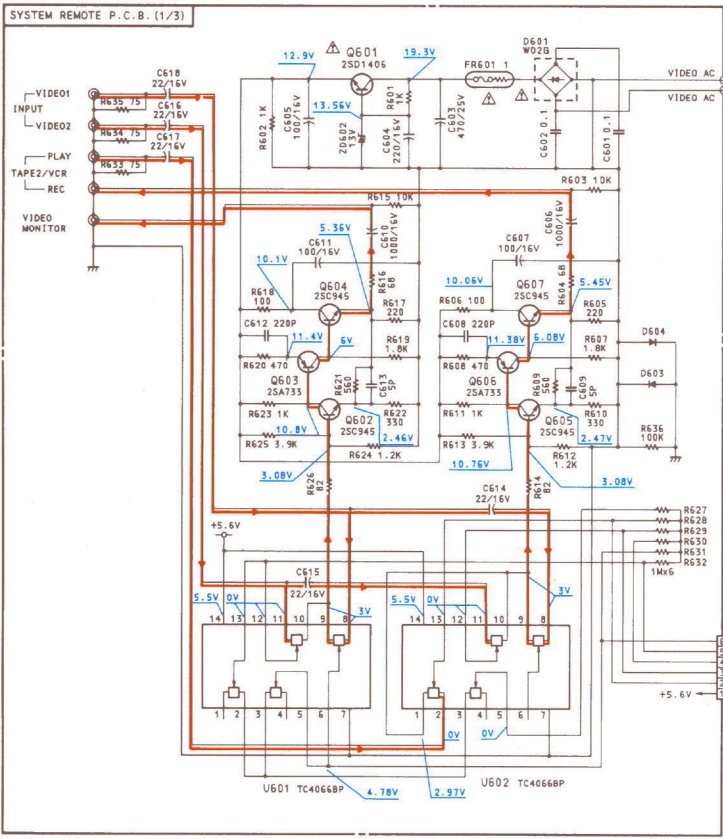


7.2. Schematic Diagrams

(1) Tuner Section



(For Japan)



Notes:

1. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
2. 2SA733, 2SA608SP, 2SA1048 and 2SA1175 are interchangeable with each other.
3. 2SC945, 2SC536SP, 2SC2458 and 2SC2785 are interchangeable with each other.
4. Description of electrolytic capacitor: 100/16V = 100 μ F 16V
5. Voltage measuring conditions
 - With no input signal applied to the input terminals.
 - With no load connected to the speaker terminals.

(2) Amplifier Section

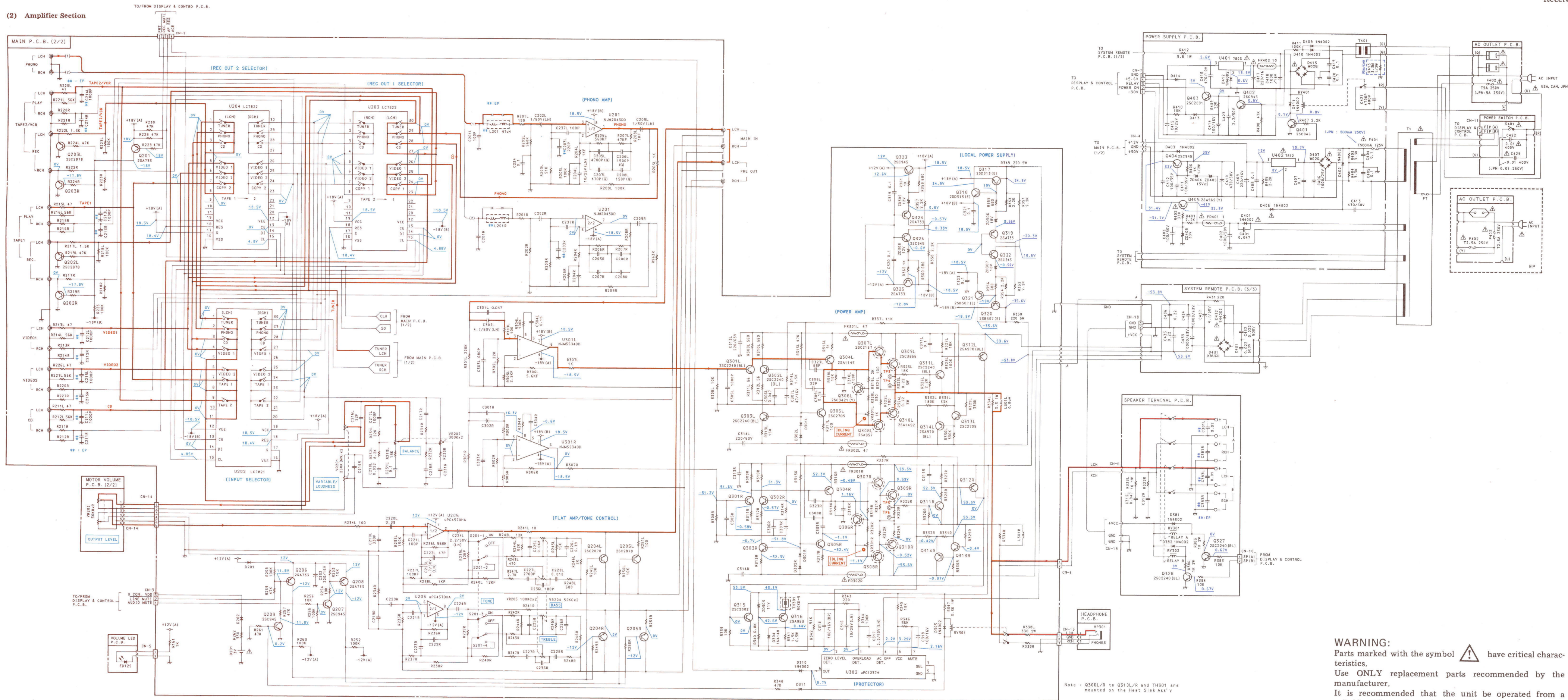


Fig. 7.2.2

8. WIRING DIAGRAM

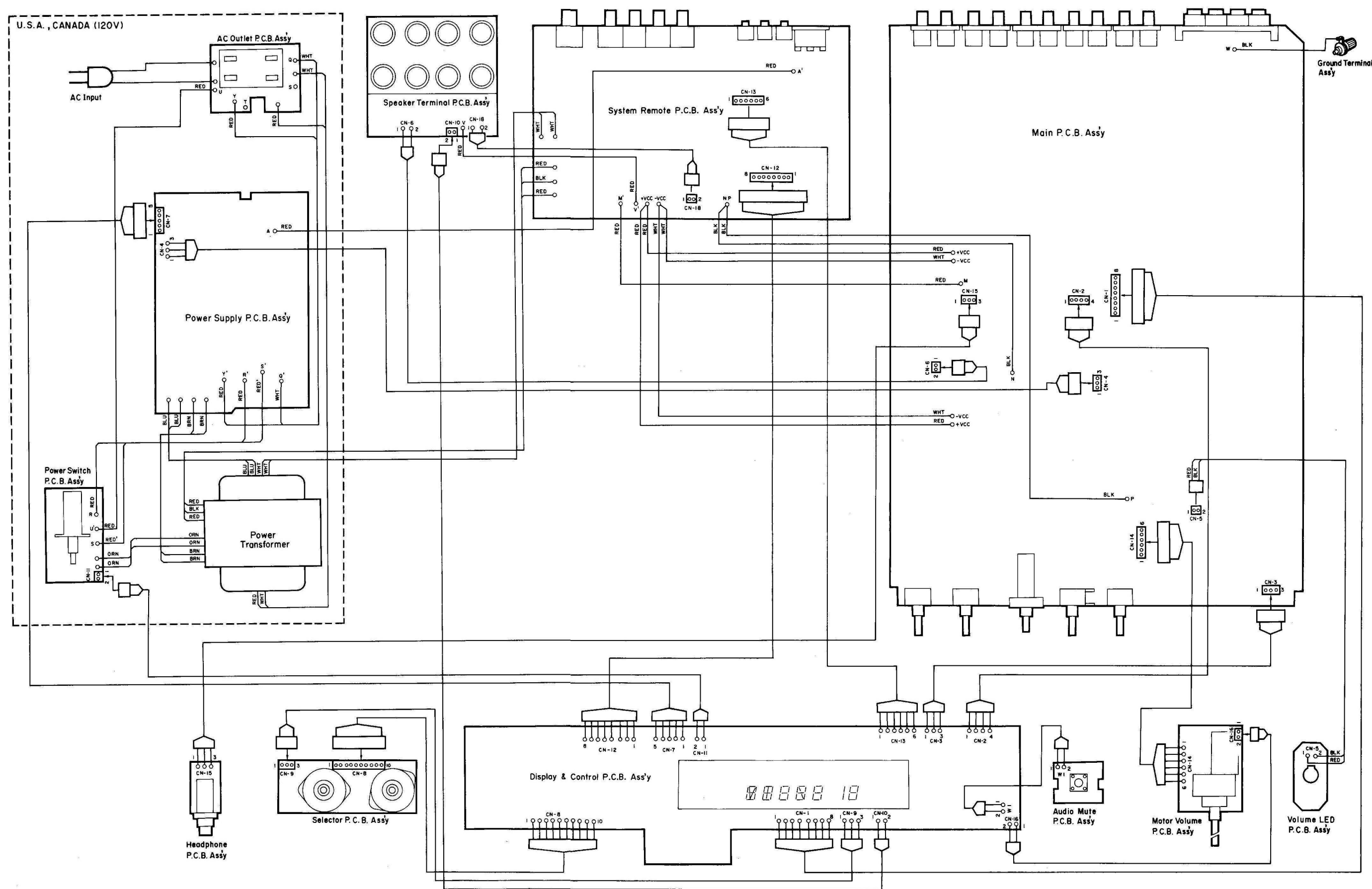


Fig. 8

- Notes: 1. Table of wire colors
- | | |
|--------------|--------------|
| BRN — Brown | BLU — Blue |
| RED — Red | VIO — Violet |
| ORN — Orange | GRY — Gray |
| YEL — Yellow | WHT — White |
| GRN — Green | BLK — Black |
2. Component side view of the P.C.B. is illustrated unless otherwise specified.
3. Wire tube color is shown in ().

9. BLOCK DIAGRAMS

9.1. Tuner & Display Control Section

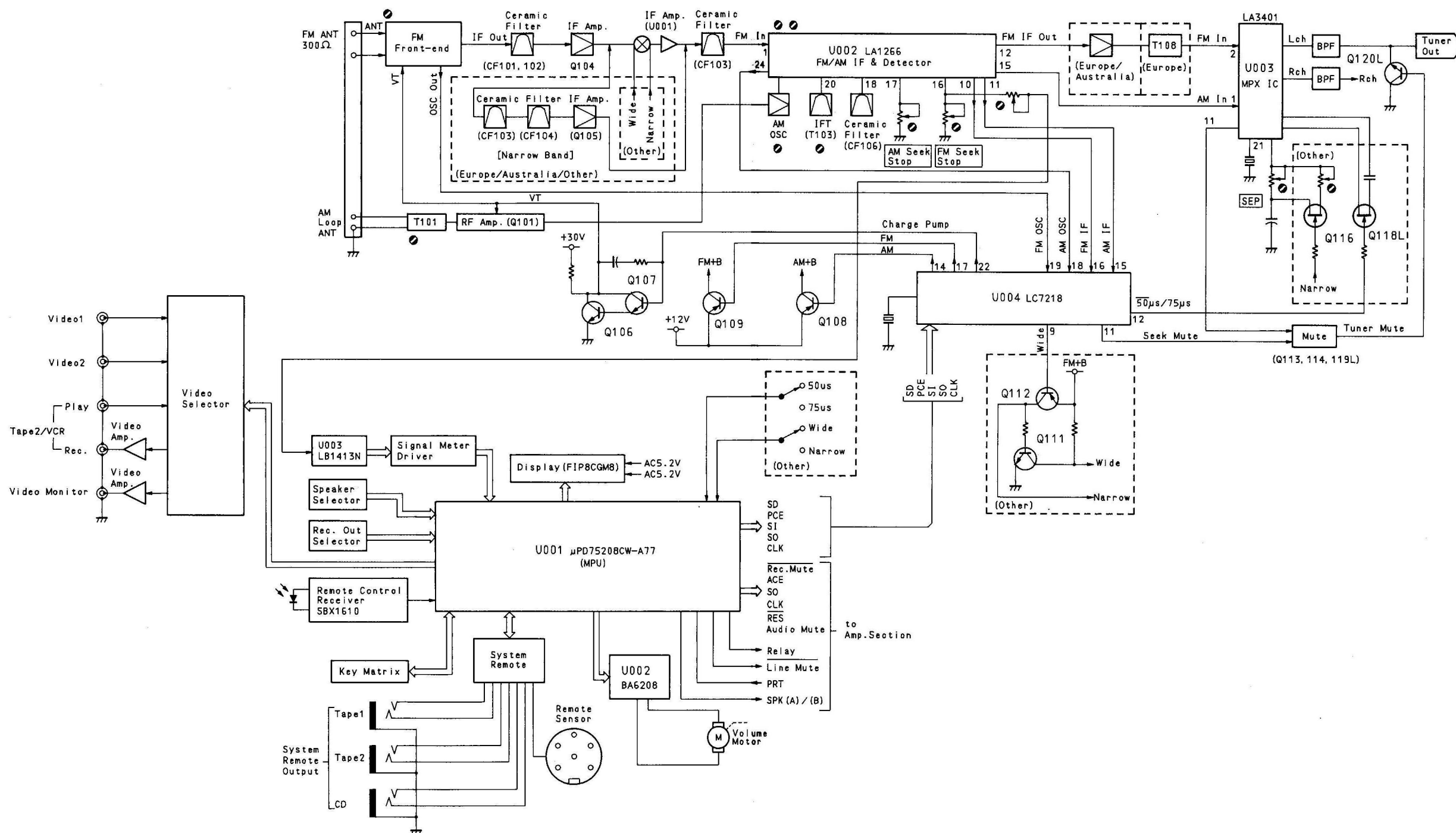


Fig. 9.1

9.2. Amplifier Section

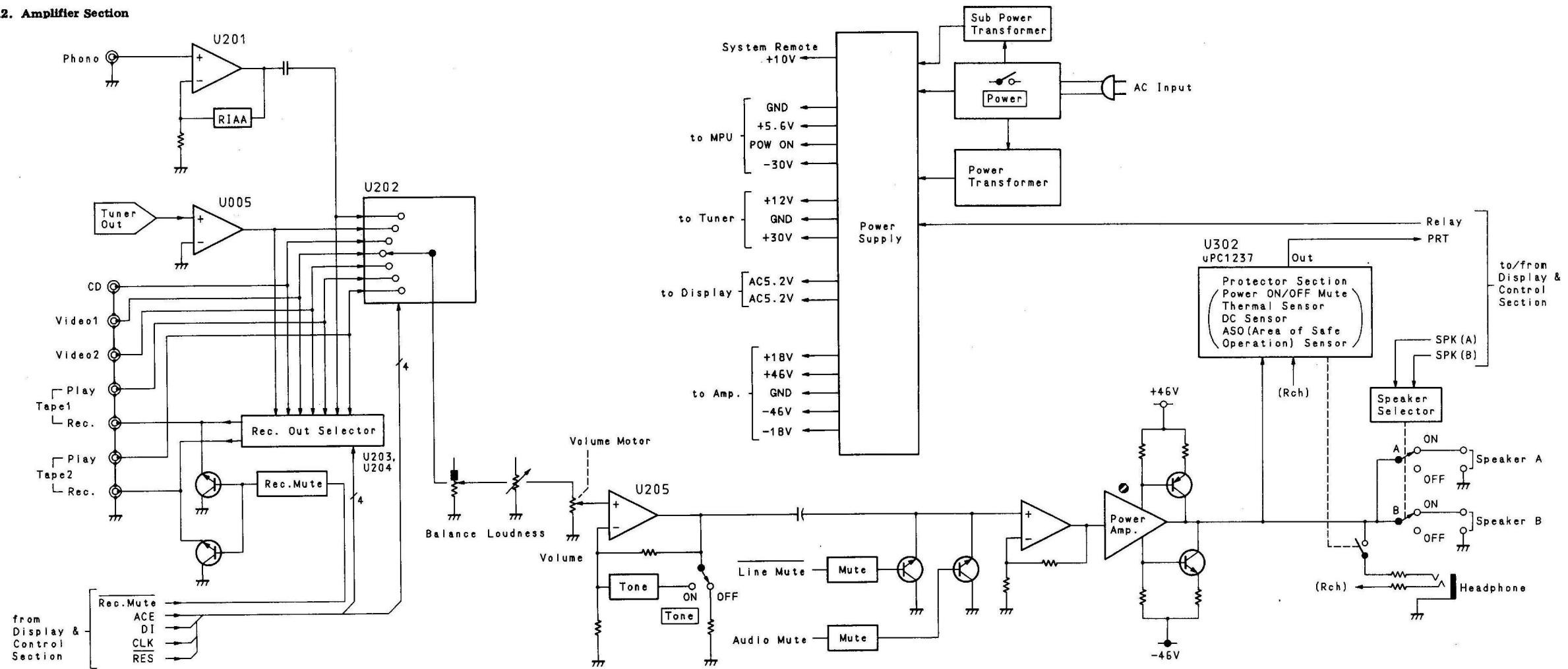


Fig. 9.2

10. SPECIFICATIONS

Power Amplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202 measured from any high-level input (CD/VIDEO/TAPE) to the speaker output.

Continuous Average Output . . . 80 watts per channel into 8 ohms, both channels driven, 20—20,000 Hz, at Power no greater than 0.1% THD
Dynamic Output Power 110 watts per channel into 8 ohms
140 watts per channel into 4 ohms
Power Bandwidth 5—40,000 Hz
Frequency Response 20—20,000 Hz; +0, —0.5 dB
5—75,000 Hz; +0, —3 dB
Signal to Noise Ratio Better than 100 dB re rated power
(A-WTD, input shorted) Better than 83 dB (IHF-A-202)
Total Harmonic Distortion Less than 0.1%
(8 ohms, rated power,
20 Hz—20 kHz)
Headphone Rated Output 187 mW
(40 ohms)
Output Current Capability 18A peak per channel

Preamplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202. Except for sensitivity, S/N, tone control and loudness characteristics (which are measured to the speaker outputs), measurements are made from the specified input to Rec. Out.

Sensitivity (for rated output)
Phono MM 2.5 mV
CD/Tape/Video 150 mV
Main in 1.0 V
Sensitivity (for 1-watt output, IHF-A-202)
Phono MM 0.28 mV
CD/Tape/Video 17 mV
Main in 111 mV
Input Impedance
Phono MM 47 kohms
CD/Tape/Video 20 kohms
Main in 20 kohms
Maximum Input Level (1 kHz)
Phono MM 180 mV
Pre Output Level/Impedance . . 1.0 V/1 kohms
Record Output Level/ 150 mV/1.5 kohms
Impedance
Total Harmonic Distortion (1 kHz, to Rec Out, at 1 V)
Phono MM Less than 0.008%
RIAA Deviation
Phono MM 30—20,000 Hz ±0.5 dB
Signal-to-Noise Ratio (to speaker output, IHF-A-202)
Phono MM Better than 78 dB
Tone Controls
Bass 20 Hz, ±10 dB
Treble 20 kHz, ±10 dB
Variable Loudness 20 Hz, +20 dB; 20 kHz, +6 dB
(re maximum attenuation:
—40 dB at 1 kHz)
Subsonic Filter (Phono only) . . Cutoff Frequency 20 Hz, —6 dB/octave

Tuner Section

[FM]

Note: All RF levels in microvolts given re 300-ohm antenna input.
Modulation: Mono 100%, Stereo Pilot 9%, Stereo Audio Signal 91%.
(European Model; Mono 60%, Stereo Pilot 9%, Stereo Audio Signal 51%)
All measurements made at Rec Out jack.

Frequency Range 87.5—107.9 MHz in 200 kHz steps
IHF Usable Sensitivity (Mono) . . 11 dBf/1.9 μV
50-dB Quieting Sensitivity
Mono 14.7 dBf/3.0 μV
Stereo 37.5 dBf/41.1 μV
Signal-to-Noise Ratio at 65 dBf
Mono Better than 79 dB
Stereo Better than 72 dB
Muting Threshold 30 dBf/17.3 μV
Frequency Response 20—15,000 Hz ±1 dB
Total Harmonic Distortion (1 kHz)
Mono Less than 0.07%
Stereo Less than 0.07%
Capture Ratio 2.0 dB
Alternate Channel Selectivity . . 55 dB (±400 kHz)
Stereo Separation at 1 kHz . . . Better than 50 dB
Spurious Response Rejection . . Better than 90 dB
Image Rejection Better than 75 dB
IF Rejection Better than 80 dB
AM Suppression Better than 60 dB

[AM]

Note: Modulation — 400 Hz, 30%

Frequency Range 520—1,710 kHz in 10 kHz steps
Sensitivity 53 dBμ/m
Signal to Noise Ratio at Better than 52 dB
90 dBμ/m
Total Harmonic Distortion at . . Less than 0.5%
90 dBμ/m
Selectivity Better than 20 dB (±10 kHz)

General

Power Source 120, 230 or 240 VAC, 50/60 Hz (According to country of sale)
Power Consumption 390 W max.
Convenience Outlets Switched: 2 (General Model)
Switched: 1 (European and Oceanian Model)
Dimensions* 430 (W) x 100 (H) x 370 (D) mm
16-15/16 (W) x 3-15/16 (H) x 14-9/16 (D) inches
Approximate Weight 11.5 kg 25 lbs. 6 oz.

<Remote Control Unit>

Principle Infrared pulse system
Power Supply 3 VDC (1.5 Vx2)
Dimensions* 64 (W) x 18 (H) x 176 (D) mm
2-1/2 (W) x 11/16 (H) x 6-15/16 (D) inches
Approximate Weight 130 g, 5 oz. (including batteries)

*: Dimensions do not include protruding parts. Height is the panel height without feet.
● Specifications and design are subject to change for further improvement without notice.

Service Manual

Receiver 1

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